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COMPUTER WEEKLY

RTOS cancelled 'for being too good'

SOME interesting alternative explanations have emerged for Univac's cancellation of its planned Real Time Operating System.

The software, on which £10m had already been spent, was cancelled last year, in favour of improvements to the Transaction Interface Processor attached to existing 1100 OS systems (CW, November 11, 1976).

A former member of the RTOS development team told Computer Weekly last week that RTOS was cancelled because it was too good. Benchmarks had shown such a performance superiority over 1100 OS, he contended, that there was a real possibility that the latter would become outmoded. Univac was left with the choice of running down the small UK-based RTOS team, or the much larger 1100 OS force.

Univac's own accounts of its reasons for the move vary. Last year, the company said that Tip development would be more economical than continued RTOS development, but last week, user demand for an extensive batch capability as well as real time was given as the primary reason.

Univac admitted that the benchmarks in question had been performed, and had shown RTOS to be superior. But Univac believed that the improvements to Tip would make 1100 OS the superior system, and a spokesman admitted that a comparative benchmark had not since been run.

From an economic point of view, he added, supporting one standard operating system would clearly be less expensive than two, and re-training and assurance of compatibility of future product lines made 1100 OS a safer bet.

Cancellation of the RTOS project has resulted in the virtual extinction of Univac's UK software development centre, which is now devoted, ironically, to performing benchmarks. Some staff have been "redeployed" but many have left.

It would have saved time and money to have assessed the situation more carefully before starting RTOS development, he agreed, "but, after all, it's not the only development that a company has ever cancelled".

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NEWS IN BRIEF

ANSI Cobol for Criterions

THE long-promised ANSI 1974 Cobol compiler for the NCR Criterion machines has been released in the US, and should be arriving in the UK early next year. The compiler was originally announced with the Criterion (CW, April 22, 1970), and scheduled for worldwide release about now.

An NCR spokesman admitted that release had been delayed but declined to give any reasons.

Zilog marketing

EUROPEAN marketing responsibilities at Zilog have been taken over temporarily by Bob Sums, vice-president of marketing for the company, following the death of Vic Yates (CW, November 3). Sums will operate from Zilog's European headquarters at Maidenhead, from the end of November.

Mididisc

AN ultra-compact disc sub-system for the desk-top systems builder has been introduced to the UK market by CII-Honeywell Bull. Developed to produce a disc unit comparable in size to the compact processors now available, it is called the Mididisc and will be available in 10 and 20 Megabyte units.

Luck of the draw

DELIVERIES of IBM's 3031 and 3032 processors are to be scheduled by the luck of the draw in the same way as 3033 deliveries (CW, June 23). Among the customers "going into the hat" will be Derbyshire County Council, which wants a 3031 to replace its 370/145.

Cutting costs

THE National Office Reprographic Exhibition will take place from February 14-16 at the Wembley Conference Centre. It is organised by the Business Equipment Trade Association. Aim of the conference is to help the business world cut costs in all departments. Further details from BETA on 01-405 6233.

Tesco gives £6m order to IBM

IN its biggest single capital investment, the Tesco supermarket chain is switching from ICL systems to a £6m IBM service including new 3032 and 3031 mainframes and, eventually, point-of-sale equipment in its department stores.

Tesco's likely move to IBM was reported last month (CW, October 27).

Tesco currently has three ICL 1904S computers, an ICL 2903, and a Computer Automation Syfa minicomputer system. These eventually will be replaced by an IBM 3032 with 6M bytes of main store, a 3031 with 4M bytes, an IBM 3850 mass storage system, two IBM 3800 laser printers, and 200 VDUs.

The main Tesco computer centre is Cheshunt, Herts, where the IBM system is due to be installed in mid 1978.

Explaining the switch, Donald Harris, a director of Tesco Stores, said: "ICL has its own development timescale, and this did not match our requirements, such as the great emphasis on mass storage and non-impact printers. It was a case of looking ahead to about 1984, and in doing this, IBM offered a sufficiently significant cost advantage."

Harris also said that in moving on to a more powerful system, the company was carrying out a decision made some time ago.

"About three years ago we would have liked to jump in and buy such equipment, but the market was wrong; it pre-dated what we required," he said.

In 1975, the two existing ICL 1904As were enhanced to 1904Ss, and this was carried out as a "holding operation prior to the move away from the 1900s, though not necessarily from ICL."

Originally, four companies were considered: Honeywell, Univac, IBM and ICL. The field was reduced to the latter two early this year, and the machines under evaluation were the 3033 and dual 2976s.

"We had carried out our evaluations on the basis of the 3033," said Harris, "although we did anticipate that something else was "coming from IBM."

It is also looking ahead to the point-of-sale field, and an experimental project is planned.

IBM to shut in India

THE Indian government has rejected IBM's proposals for restructuring its Indian operations to meet local ownership regulations (CW, September 22), and IBM is closing its business there.

The company is to sell all the machines it has on rental, dispose of its data centres and maintenance operation, and close its factory which manufactures mainly unit record equipment. It hopes to complete the sales within 180 days. Its present and future will be confined to a liaison office which will handle authorised sales of large systems.

ICL is reducing holdings in its Indian companies to 40%, and manufacture of 2903 there is still under discussion.

Lorraine King receives a donation of three computing courses from NCC director David Firnberg.

Careers in computing for the disabled

TWO visitors to last week's Compec exhibition, David Firnberg, director of the National Computing Centre, and Lorraine King, chairman of the British Computer Society's specialist group for the disabled, met on the NCC stand for the presentation of three computing courses donated by the NCC to the specialist group.

The audio-visual courses on Cobol, Filetab and the implications of computing systems are for Stoke Mandeville Hospital for paraplegics, and people with spinal injuries. They will give patients the chance to learn about computing and see if they have the aptitude and interest to follow a career in computing.

A machine for running the video tapes has been presented by Philips.

Lorraine King pointed out that computing is a career which people can follow even with their disabilities, and she appealed for help with the specialist group's work, and in particular for help in finding jobs for people who complete the NCC courses.

Those who can offer help should contact Derek Nicholson, secretary to the BCS Specialist Group for the Disabled, Ludwig Guttman Hospital, Stoke Mandeville.

Faster micros next year

FASTER versions of the Intel 8085 single chip microprocessor are under development, and should be available by mid-1978, according to Les Vadasz, vice president and general manager of Intel's Microcomputer Components Division.

The company is now in the final stages of developing specifications for the new 8085 variants.

Vadasz's confirmation of the improvements follows industry rumours that the company was working on developments in the performance of the device. A figure of a four times improvement in cycle times has been mentioned. If this figure is finally substantiated, it would reduce the 8085's cycle time from its current rating of 330 nanoseconds, to under 90 nanoseconds.

Similar improvements were also postulated for the 8080 microprocessor, but Vadasz effectively scotched this, saying that although higher speed versions were available through selection at manufacture, no developments were planned.

Viewed by some industry observers as Intel's "reason for customers not to buy the Zilog Z-80 device", it seems likely that at least one version of the 8085 will be pitched near the speed of the faster version of the Zilog part, the Z-80A, which has a cycle time of 250 nanoseconds.

There has even been mention that speed improvements will make the part more useful than the 8086, 16-bit microcomputer which is now scheduled for sampling early next year.

Harris launches Model 6

MORE speed and more power for less money is claimed by Harris Systems for its latest computer, the Harris Model 6 Virtual Memory, announced at Compec last week.

Up to 20% increase in processing power over previous systems in the Harris Series 100 range is claimed.

Both scientific and commercial applications can be handled, and cost of the basic 115 system is £65,000. Upgrading from this to the 125 costs about £30,000 extra and from the 125 to the 135 about £45,000 extra.

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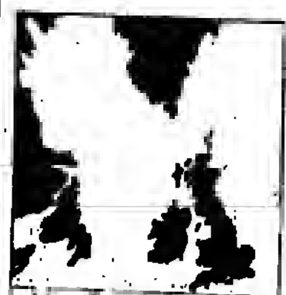

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Briefing

Suit against SEN fails

IN the High Court last Monday Data General failed in its attempt to win an injunction to stop SEN Electronics from marketing, selling and advertising its Helvet-I minicomputer in the UK.

However, Data General says that it will continue to vigorously prosecute its action against SEN for the alleged misuse of proprietary information, even though Mr Justice Whitford said that it had no arguable case on the evidence before him.

The Helvet-I is functionally compatible with the Data General Nova and uses a CPU from Keronix Inc of Santa Monica, California, which builds and sells a Nova-compatible machine in the US. Data General has an ongoing suit against Keronix for the alleged misuse of proprietary information while Keronix is suing Data General charging DG with conspiracy to commit arson and wire tap Keronix's telephones (CW, January 30, 1975).

Laur Punter fails

FOLLOWING the liquidation of consultancy Laur Punter, the Euroco consultancy has confirmed that it is discussing a takeover of the company's assets. A definite conclusion has not yet been reached, said a Euroco spokesman.

Challenge to 3031

CHALLENGING the IBM 3031 is a new processor from Itel for the top-end of its AS/4 and AS/5 line of IBM plug-compatible CPUs. It is called the 7031 and has a maximum of 6M bytes of main memory, compared to 6M bytes on the 3031. Itel claims its total 7031 package in Europe will be 30% cheaper than the 3031. Hitachi is currently developing an AS/7 for Itel to compete with the 3033 and in Iran, where IBM is in dispute with the government, Itel is planning to enter the market.

Worker directors

WORKERS at Computer Machinery Company are electing two new worker directors. Those elected, out of eight candidates, will attend monthly board of management meetings to discuss company planning. Voting ends on November 30, and results will be declared early next month.

By George

THE George 3 DME environment on an ICL 2960 provides about 35% improvement over George 3 on a 1903T, according to Phil Fellows, director of Vickers Management Services, which is running a pre-release version of George 3 DME. See page 3.

Byte Shop bought

THE Byte Shop retail chain in America has been bought out by Logical Machine Corp., the California-based manufacturer of the Adam computer. The Byte chain, which had been suffering capitalisation problems, will continue to be run as an independent business.

LEFT: Amdahl field engineers at work on the V5 installation at Sunbury. David Holt looks on as Steve Brinkler keys in test programs.

First UK Amdahl installed by BOC

TIME sharing and APL bureau services will be two of the most important applications for the first Amdahl processor in the UK. This was installed at BOC Datasolve's centre at Sunbury-on-Thames, Surrey, at the weekend, and is expected to go live in about four weeks.

The Amdahl machine, a 470/V5, will effectively double BOC Datasolve's processing power, by providing the same throughout as the bureau's multi-processor 370/158 which is located at its Oxford Circus centre.

BOC Datasolve says that the TSO and APL work currently being handled by the 158 will be transferred to the Amdahl and the 158 will concentrate on CICS and IMS processing. Both machines will also run batch and RJE work.

The four Megabyte 470/V5 will operate under exactly the same system as the 158 configuration, MVS Release 3.7, and all the peripherals will be from IBM.

The 470/V5 will be maintained by Amdahl's own field engineers and Amdahl's headquarters at Sunnyvale, California, will provide real-time diagnostics facilities via a dial up satellite link to Sunbury.

One of the main reasons for BOC Datasolve selecting an Amdahl machine was the quick delivery offered, but far from deserting IBM the bureau has a 3033 on order which is expected to arrive in about a year from now. A second 3033 may eventually replace the 158 at Oxford Circus.

Neddy move could limit UK software

A CONTROVERSIAL proposal that government preference should be given to software houses which develop systems for UK minicomputer manufacturers, is being considered by the manpower resources sub-committee of the Neddy computer sector working party.

If the proposal is accepted by the Neddy council when it is discussed within the next two months, it would be another move in Neddy's attempt to get support for UK mini manufacturers, as the council urged earlier this year (CW, May 19). However, the government explicitly ignored this advice by stating that there will be open tendering on government contracts below the ICL 2960 level.

In view of the overall aim of the manpower sub-committee to increase investment in the development of British software skills, these latest proposals could have the effect of limiting the development of British software talent and export potential by forcing an over-concentration on software for British machines.

It is understood that the two union representatives on the sub-committee, Tim Webb, of ASTMS, and Ian Benson, of TASS, played a leading role in the development of this proposal, but will meet considerable resistance from representatives of the computer services industry and American manufacturers on the sector working party.

The sub-committee's other proposals, which are likely to find widespread support, include a call for massive injection of government money into computer education and training both at school and at work, and for in-depth research into the effects of computing on employment.

The sub-committee will recommend more money for computer education at secondary schools, with the aim of gearing this education to producing people who could slot straight into computing jobs.

It also recommends support for in-service training to keep computer staff up-to-date with the latest technology and methods.

The growing use of word processing in the office and automation in industry has led to the sub-committee's concern with the possible effect of computing on employment. It points out

● Turn to Page 11

Best slogan

WINNER of the Computer Weekly badge slogan competition at Compec was Mercia Davies, a lecturer in computer studies at the South West London College. Her entry was:

BINARY DOESN'T HURT A BIT

She wins the prize of a bottle of Champagne.

Multics comes to Europe

MAJOR enhancements and price cuts have been announced by Honeywell on the large-scale Level 66 Multics system, which is to be introduced in Europe next year.

The announcements constitute Honeywell's response to IBM's 3030 series. The 68/60 and 68/60 models are being replaced by a single model with four power levels, called the Level 68 Distributed Processing System, DPS. The power range is said to be from 25% above the 3031 to 25% above the 3033.

The basic system with 512K-words costs $1,259,000, about 50% less than the previous base price for Level 68. All software apart from the operating system is now priced separately.

New features include the ability to share resources between Level 68 and foreign hosts, an electronic mail facility for both single and bulk mail, comprehensive word-processing facilities and support for HDLC and X25 communications protocols.

The IDS 2 database system, also available on Level 66, is offered, together with a relational database system.

The announcement marks the emergence of Multics into the mainstream of the computer market. Its importance is enhanced by the troubles Honeywell has encountered on the large-scale 66/65 system which is being extensively redesigned and will not be available until 1979 (CW, November 3).

Multics was originally designed at the Massachusetts Institute of Technology as an ultra secure system with exceptional uptime (CW, August 26, 1976).

A hardware enhancement which increases the power of the 68/80 by 15% has also been announced. As a field-upgrade it costs $150,000 and will be available in 15 months time. New systems with the enhancement will be available in a year's time at the same price as the existing 66/80.

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COMPUTER WEEKLY'S INSIDE NEWS

ONLINE REVOLUTION

THE coming of online systems has relieved many a computer user of the burden of batch processing. This week's special section deals with the development of networks and terminal systems, and considers some of the wider implications of online working.

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MICHIE v CLARKE

Challenging Arthur Clarke's view that all problems can be solved given the time and the resources, Professor Donald Michie declares that the machines will not rule. He believes that the evolutionary path will be one of symbiosis rather than displacement.

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MOVING UP

A Briton, Brian Long is now managing director-elect at Honeywell UK and the company has restructured its operations along product rather than geographic lines.

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USER VIEWS

ICL defends its attitude to independent maintenance companies; computer manufacturers say they do not fear a new UK Act on unfair contracts; David Firnberg calls on OPMs to come out of their cocoons. All in User Forum

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COMPUTERVIEW

Software conversion is a costly business

SINCE ICL announced its DME operating systems on the 2960 earlier this year, its 2960 orders have doubled. And the success of DME is not that it is a 2900 operating system, but that it makes the 2900 look like an ICL 1900 or System 4.

At Vickers for example (see page 3), a 2960 is replacing a 1903T. But although the 2960 was commissioned last week, it will be at least two years before it runs fully in genuine "native" 2900 mode. In the meantime it will be running under George 3 DME, giving about a 35% throughput compared to the 1903T and operating like a 1900 George 3 system.

It took ICL a long time on the 2900 to realise two obvious facts of user life: that the cost of conversion is of major significance in choosing new systems, and that a major way of keeping an existing customer base is to provide better conversion aids to new systems than the competition.

DME was announced earlier this year (CW, April 21), over 2½ years after the 2900 was announced.

Before DME, ICL offered — as it still does — microprogrammed emulation-packages running under the 2900 VME operating systems.

But these do not really provide the efficiency needed by users such as Vickers, which requires increased capabilities and reliable live running during the transition from one system to another.

DME was not part of ICL's original 2900 plans, but was developed following strong pressure from existing users and, therefore, from the ICL sales force.

As Fred Lamond pointed out last week in Computer Weekly, ICL has now learnt its lesson, with DME playing a crucial role in the 2950 "swing" computer, which swings into the gap between the 24-bit 2903 and small 1900 systems and the 32-bit larger 2900 machines, giving a smooth transition before swinging into native 2900 mode. The danger of the DME approach, as one wit has succinctly put it, is that emulation is like masturbation — once you get used to it you begin to think it is the real thing.

The importance of software conversion costs was highlighted recently by a report which calculated that the American government spends over $450 million a year on software conversion — and that at least a quarter of that could be saved by more efficient software conversion practices (CW, November 10).

The report was produced by the General Accounting Office, GAO, which is the US federal government's auditing bureau.

One of the GAO's conclusions was that the government should establish a federal software conversion centre which would recognise that software conversion is an expertise in its own right, requiring skilled and experienced personnel for systems evaluation and conversion implementation.

The GAO has followed up this report with some recommendations on how to ease the transition from one type of hardware to another.

Advice includes looking through software and data to decide whether any of it can be thrown away; whether rewriting some programs is better than trying to convert them; whether there are any suitable outside contractors who could implement at least part of the project — and other commonsense advice which so often characterises any general guidelines but which is so often ignored in practice.

In the helter skelter of technological progress, it is often forgotten that the real user world evolves at a more conservative and leisurely pace.

Gene Amdahl once described his belief that IBM would never provide any radically new system that was incompatible with existing systems by saying "Users want to reach Nirvana through the gradual evolutionary methods of the Buddhists and not through the painful Christian way of having to die before entering heaven."

This evolutionary approach should not be top of the priority list in the design of any new system because user investment in software systems is now so enormous that any other approach is bound to fail.

It is likely, for example, that the new IBM E-series, which eventually will replace the 370 range, will emerge slowly, over a period of time, and will consist of a range of processor and controller options, with associated software and networking capabilities, rather than be announced suddenly as "a new range."

In the ever-changing, microprocessing, distributed intelligencing, superslick-selling seventies, it is comforting to know that the stabilising sensibility of the user exists to bring computer manufacturers down to earth.

Ten years ago...

COMPUTER WEEKLY NOVEMBER 23, 1967

THE corporate structure of IBM acquired a new level, a four-man management committee standing between the highest level of executive and the operational executives, in preparation for the formation of specialised divisions within the company, and a first step towards avoiding any antitrust action, were suggested as reasons ... The Smithsonian Institution of Washington was doing research for the first complete computer history ... CII's second Type 90 computer was ordered by Royal Dutch Shell ... The Post Office advertised for a deputy director for the National Giro, at £4,000 [illegible]

FOCUS ... on the exhibition survival kit

ANY dedicated DP manager who completed the course in the recent Datafair, International Business Show and Compec computing exhibition stakes, deserves a merit award.

Meanwhile, evidence of attendance at each exhibition will have to be supplied; sore feet plus a glazed look will not be sufficient.

Perhaps a fully comprehensive collection of plastic bags and badges complete with computer slogans, plus a substantial collection of authenticated documentation, preferably "bundled," would be accepted as valid proof of attendance. Successful contenders would be those who express a determination not to tackle the full course the next time round.

Just why the organisers of Datafair, IBS and Compec choose to mount their sessions in a sequentially structured mode is mystifying. There certainly seems to be scope for a future policy of distribution. But for those intent on covering such exhibitions, Focus now presents his survival kit.

Item one would be a good map. While Compec and IBS are relatively easy to broach, Datafair presents hurdles which even the most nimble goat would hesitate to negotiate. Novices to the Hammersmith site could easily discover themselves back in central London (or Slough) rather than the Cunard Hotel, such are the hazards of the approach roads.

For those who manage to beat the system and duly arrive at Datafair, a torch is a good bet, power cuts being a traditional feature of this particular event. In fact, Datafair certainly seems to have more than its fair share of handicaps, not the least that of environment. Adapting sundry bedrooms into industry display areas has notable limitations. What may well seem suitable decor within the confines of a hotel bedroom where wallpaper design or wall lights are concerned, only adds to the general sense of incongruity.

It did appear that DPM's were notably few and far between and had obviously decided not to date this fair.

Similarly, DP managers appeared few and far between the rather isolated stands at the International Business Show in Birmingham. At this venue, the survival kit should include salt biscuits to assist the consumption of numerous [illegible] machine samples.

The IBS was certainly [illegible] for the number of [illegible] which the visitor could [illegible] plus the fact that there [illegible] to be more model girls [illegible] than related computer [illegible]ment. The enterprise [illegible] much that of a BEE [illegible] been moved lock, stock [illegible] calculator, north for [illegible] miles. Any DPM's [illegible] should include a list of excuses for taking [illegible] attend.

In contrast, Compec [illegible]cidedly lacked space. [illegible] kits should have included compass for finding [illegible] around. Even the [illegible] entrance, despite every [illegible] aid known to modern [illegible]graphers, seemed baffled [illegible] dim signs pointed to [illegible] areas, without indicating whether the casual DPM [illegible] would be welcome. Visitors — providing they could find [illegible] exit route — convinced [illegible] were large areas unexplored [illegible]pecially if they glimpsed [illegible] carrying select plastic bags [illegible] origin of which had obvi[illegible] eluded many.

Physical stamina being [illegible] vital link in covering all [illegible] events, the survival kit should include a season ticket to [illegible] National Physical Laboratory [illegible]

INTERRUPT...

IT had been a long dinner and the data processing manager was wondering how on earth he was going to get up in time for that 08.00 meeting with his vice president. Still, the computer centre was only just slightly out of his way home and it was good for his image just to drop in and make sure the night shift were not having any problems with the payroll suite after last month's fiasco.

Turning into the car park he looked twice at the computer room windows, blinked, and wondered if he should have had that last brandy. For there, at the far end near the paper store, was a new piece of equipment he had never seen before. It was box shaped and IBM blue.

Walking into reception he could see a flurry of activity in the computer room through the security doors which should have been closed — but were not. He made a mental note to see the operations manager about that the next morning.

Then he realised that there was in fact no new equipment. But standing at the far end of the computer room, next to a carefully stacked pile of floor tiles, was a mini car with bonnet up. Underneath could be seen one end of the night shift leader carefully wedged in the space below the raised floor.

The moral of this story is one of the most frequently ignored fundamentals of working in DP — "when it's time to go home, it's time to go."

● Submitted by Ian A. Riddle of Enfield, Middlesex, who wins the weekly £5 Interrupt prize.

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Rank Xerox 'donates' salesman to disabled

THE answer to the British Computer Society disabled group's prayers for full-time help has come in the form of a Rank Xerox salesman.

He is Glyn Wild, who is being "donated" to the group by Rank Xerox for the first six months of next year as part of a social service leave scheme. Under this scheme a company frees an employee to work for a charity on full pay instead of making a cash donation. About 50 companies recognise the scheme, which was started by some big firms, including ICL, IBM and Rolls-Royce.

One of Wild's most pressing jobs will be to set up a central information base, gathering information which is at present in scattered reports, or in people's heads.

At the same time he will be trying to place programmers trained at centres for the disabled, approaching the EEC for financial support and arranging the manufacture and marketing of the Mate terminal designed by Essex University for the disabled (CW, July 21).

The development of Mate is being funded by the proceeds of this year's Computer Weekly Charity Ball, and the terminal is expected to be ready for marketing by Christmas.

Towards the end of his six-month stint Wild will look for someone to take over the director's job, probably on the same basis.

Emphasising the value of Wild to the disabled group, the chairman, Lorraine King, said, "We have been hoping all this year to get a full-time co-ordinator. This arrangement overcomes our main problem, a shortage of cash."

Comish to be ICL marketing director

The post of international marketing director at ICL is to be filled by Douglas Comish. The vacancy arose with the appointment of the previous director, Dr Christopher Wilson to succeed Geoffrey Cross as managing director of ICL (CW, November 17).

Doug Comish joined Leo Computers in 1956. He sprang to prominence last year when he was appointed director of small business systems with specific responsibility to integrate the international operations of Singer Business Machines into ICL (CW, March 25, 1976).

This major undertaking was successfully completed on October 1, 1976. Since then, he has been director of development programmes at ICL.

The international division takes in all ICL operations outside Europe, including Australia, South Africa, the Far East, Oceania and the Americas.

Committee to 'vet' Vickers orders

THE Vickers organisation has set up a central computer policy committee to co-ordinate the computer investment of all its operating divisions and companies. The chairman of the committee is Professor Gordon Black, director of the Manchester Regional Computing Centre, head of computational science at the University of Manchester Institute of Science and Technology, and a director of ICL.

The Vickers organisation includes the engineering group, which has a nationwide network based on ICL systems, and Roneo Vickers, which has an IBM 370/138 at Romford, Essex. Last week, the engineering group commissioned a 2960 to take over from a 1903T at its Newcastle computing centre.

Assistant managing director of Vickers Jim Hendon, who is also a non-executive director of ICL, said in Newcastle last week that no mainframe or other major computer equipment or service within Vickers can now be ordered without being vetted by the committee. The aim of the committee, he said, was to optimise the use of computer resources across the organisation but that it was not seeking to impose a standard solution in all operations.

The engineering group's £750,000 2960 was one of the first to be ordered from ICL and is currently running a pre-release version of George 3 DME, which emulates the 1900 George 3 operating environment on a 2960.

The total investment in the engineering group's Newcastle centre is about £2 million, according to Jim Hendon. The investment was assisted by a 22½% government grant as the centre is in a development area and is "contiguous with production works."

Hendon said that the aim of the computer system is to become self-financing through selling its services to other divisions and outside Vickers. He hoped that it would start showing a profit on investment within two years. At present, only 20% of its workload is for customers outside Vickers.

The availability of the George 3 DME was highlighted by Vickers management services director Phil Fellows as a vital part of the 2900 capability. At present, he said, George 3 DME is providing about 35% improvement over George 3 on the 1903T. He hoped it would be running in full 2900 native mode in about two years' time.

Prophet likely to profit from the US

A FINANCIAL modelling package developed in Ireland could find its way into the lucrative US market early next year. Known as Prophet, the package incorporates aids to model building which are also useful in a far wider program development context.

Prophet, already released in the UK, was developed by the Irish Nitrogen Company, NET, of Arklow, which manufactures fertilisers. To market the software an ad hoc company known as Sigma has been formed by Denis Fitzgibbon, managing director of Gamma Data Systems, a Dublin-based bureau.

There is no direct connection between Gamma Data Systems and Sigma, but the bureau is offering the Prophet package, which is also run on Gamma bureaux in London and Nottingham. Like Gamma Data Systems, these are partly owned by consultancy Gamma Associates.

Apart from NET, there is one other in-house Prophet user, the Irish Management Institute, in Dublin. Users of the package on the bureaux number "four or five."

Prophet runs on Digital Equipment PDP-11s. Financial models are developed in a very high-level language and precompiled into Basic Plus.

To allow amendment of the Basic program and speed its running, an editor and optimiser are included. These can be used on any text and any Basic program respectively, and are already arousing general interest, says Fitzgibbon.

The size of the potential US market for Prophet was seen at first hand by Gamma Associates managing director Dr George Coggan, on a recent visit to the US. Definite negotiations have not yet begun but conclusion of an agreement is expected in the first half of next year.

Growing show

THREE times as big as the last show in Brighton, Communications 78 is scheduled for April 4-7, 1978, and will for the first time be held at the National Exhibition Centre in Birmingham. Over 200 companies and organisations have already booked 90 per cent of the stand space.

Harris joins Marcol group

THE Marcol group has been strengthened by the appointment of John Harris, manager of ICL's education region, as a director. Harris will be responsible for Marcol's growing business with hotel systems and for contract operating and software business.

Harris has been with ICL for 12 years.

Marcol expects a turnover of £2.25 million this year, compared with £1.5 million for the previous 18-month period. On January 1 it officially takes over J. Harwell Data Processing, the London company which specialises in ICL systems. Harwell will run as a subsidiary company, headed by its current managing director Jack Harwell.

Keeping tracks on RAC rally

AS the surviving competitors in the Lombard-RAC Round Britain Rally motor into York this evening (Thursday), at the end of a 19,000 mile trip which started at Wembley last Sunday morning, a specially installed NCR 8250 will be compiling the final results, which should be completed by about 20.00.

This is the first time a computer has been used exclusively to enable rally-watchers to keep track of progress as the cars rumbled through Wales, Scotland, the Lakes and North Yorkshire. Up-to-the-minute details have been displayed on VDUs at York, and printed out on terminals at the four major service areas along the route.

Software was written by Harland Data Systems of Hull, and was based on programs the company had produced for the Mintex Rally, in February.

Access control conference

THE automatic signature verification system, Verisign, developed by the National Physical Laboratory (CW, December 18, 1975), is one of the main subjects to be discussed at a one-day conference on automatic access control systems at the Royal Institution in London on November 29.

The conference is being organised jointly by the Institute of Electrical Engineers and the Institute of Electrical and Radio Engineers, but is open to non-members of these bodies, including data processing managers interested in controlling access to computer rooms or access to computer files.

One of the speakers will be from the Home Office and will describe access control techniques involving fingerprints, while EMI and Cambridge Consultants will talk about bank credit cards. A user's view of access control will be presented by a speaker from the UK Atomic Energy Authority.

The conference fee is £17.28p, including lunch.

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DOWNTIME by Chad

Multilateral thinkers

THOSE disposed to dismiss as a paper tiger the threat af the Japanese computer industry to the world hegemony of the US companies, particularly IBM, may be disposed to think again when they consider what is going on at Japan's leading mainframe manufacturer, Fujitsu.

According to the Japan Economic Journal, the Mecca for all hudding Japanese systems engineer is Fujitsu's "Information Disposal System Laboratory" in Kamata, Tokyu. Although the title makes it sound like a glorified municipal tip, the description of what goes on inside dispels any such misapprehensions.

"The atmosphere of this laboratory is completely different from that of any other ordinary affice or manufacturing plant," writes the Journal.

"Men are almost perpetually busy with their special rulers, formulating various programs by writing down cryptic circles, angles and lozenges. Then there are mountains of input cards. The warkers' brains are thus worked ta their very limit and their ways of thinking ere never allowed to roam in single directions.

"The workers have to think not anly vertically end horizontally, but also diagonally and even reversely. For such mantal legerdemain, extremely tough nerves and devotion are mandatary."

One can well believe it. Our friendly neighbaurhood IBMer is a pretty add sort of chap, but he's nat that odd. The question raised is whether IBM can campete in the long term with such single-minded devotion to duty. Today, motorcycles and family cars. Tomorrow, the world, Rex?

Backgambling?

FOR the second time in four weeks, Adnan Jazrawi from Reading, chief programmer with ICL Dataskil, has won the monthly backgammon tournament organised by the Thames Valley Backgammon Club.

In the consolation event, a systems analyst with Marconi Space and Research Division, Michael Moore from Camberley was the winner over Sonja Ach, whose husbend Jacques is also in the computer business.

In an interview after the competition Moore was asked why so many computer people pley beckgammon, and he said thet the game is basically played by two types of people — gamblers and logical thinkers.

The secretary of the club, Tony Hood, who is not a computer person, wanders which of tha two groups ere predominant in the computer industry, and asks, "Are our computers designed end operated by gamblers who think logically, or by logical thinkers with a gambling instinct?"

Either way, Thames Valley Backgammon Club welcomes all players. Details of membership can be obtained from the secretary, Tony Hood, at 10 Monck Court, Southcote Road, Reading, Berks. Telephane Reading 585410.

Ghost in the machine

AN interesting postcript to the recent Futureview interview with Arthur C. Clarke (November 10):

Webster: There is one erea in computers that is growing quickly, end that is computer crime.

Clarke: Yes, it's a growth industry.

Webster: It has a whole terminology of its own: Super-Zappers, Logic Bombs, Trojan Horses.

Clarke: Hidden programs that pop up when needed, which you can never get at unless you know some way of calling tham up. Exorcisms, computer exorcisms, will be a big industry in tha future. Exorcist Part III: The Demon Program.

Demons rotten to the core please take note.

The sticking point...

THE news thet the Tesco supermarket chain is to spend £8 million with IBM for this week's special computer offer, a 3031, a 3032, and other assorted commodities (CW, November 17) has prompted me into considering the obvious — whether Tesco will attempt to pay in unused Green Shield stamps.

If they do, just what can IBM expect to get through its corporate letter box? Intrigued by this question, I took my 5 Mbyte Abacus in hend end set to work. The result is, to say the leest, e large number.

IBM may just be on the receiving end of 18,181,818,181 Green Shield stamps. If Tesco are kind, and have long tongues, this could be reduced to 14 Megabooks. There is one problem: 3031s and 3032s eren't in my Green Shield catalogue.

Pansophistry

PROOF that not all the visitors to Compec were data processing geniuses (genii?) was provided by some of the entries to a competition run at the show by software house, Pansophic. Visitors had to guess how many source statements there are in Pansophic's program management package, Panvalet. The actual number is 332,169 and the prize-winning guess was 337,852, not too far off the mark, which is more than can be said for some of the other guesses, which ranged from a mere 64 to 80 million.

IBM releases third Series 1 operating system

RELEASING its third Series 1 operating system in the US, IBM has given users a couple of surprises. The software has been released a month earlier than expected, due to early completian af testing, and it will cantral user pragrams in the maximum 128 Kbytes of memory.

The previous operating systems for the machine, CPS and RPS, only supported programs in 64 Kbytes. The third product known as the event-driven executive, was expected to have the same limitation.

As the name implies, EDX is designed chiefly to handle programs dependent on external events, for example data acquisition and process control. In this role, the Series 1 seems likely to take over some of the applications previously managed by IBM's System 7. The availability of such software also emphasises the distributed processing orientation of the Series 1.

The larger memory capacity will, however, make the EDX system attractive to a wider range of users than the specialists, since large and more complex user programs and systems can now be accommodated.

EDX provides a multiprogramming and multitasking environment, and includes [...] for dataset management, distributed processing, communication with a 370 host, program entry, editing and interactive debugging, sensor handling and graphics display. Terminals supported include the 4979 VDU and any ASCII terminal connected through a teletype adaptor.

EDX has not yet been announced in the UK.

Cray quits presidency

REFLECTING the metamorphosis of Cray Research Inc from a development into a praductian and marketing company, founder and chief executive Seymour Cray has been appointed chairman. Crey hands aver the past of president to Jahn Rollwagen, previously vice-president for marketing and finance.

Rollwagen will be responsible for day-to-day aperatians and marketing, freeing Cray to concentrate on technical leadership for research and development.

The campany builds large-scale vector processors designed for fast execution of complex scientific and technological tasks. They need to be front-ended by a large general-purpose mainframe in most applications.

Gamma to expand in Europe and US

Dr George Coggan

AFTER several years of rapid expansion in the UK, the Digital Equipment specialist systems house, Gamma Associates, is aiming to expand overseas with joint ventures on the Continent and in the US.

Gamma's managing director, Dr George Coggan, is currently talking to US systems houses that might benefit from an association with Gamma.

He told Computer Weekly: "We are ten times the size of the average DEC systems house in the US and heve been associated with DEC five times as long. In fact, we probably have the largest body of DEC software expertise outside DEC itself anywhere. In addition, few US organisations have our experience in running a PDP-11 based time-sharing service."

Gamma is already closely involved with a US software house, AW Consultants of Philadelphia, in a joint enterprise called Gamma Telecommunications (CW, May 5). This sells systems that run AW's special multi-terminal network software to discount warehouses and retail organisations in the UK.

The Continental markets being looked at most closely by Gamma are Benelux and Scandinavia where the firm believes that the much lower cost of software development in the UK will enable it to supply systems at 70 per cent of the price charged by local systems houses.

Gamma Associates has formed a company, Gamma European Systems, specifically to set up joint venture firms on the Continent. Gamma Associates is aiming for a turnover of £2.5 million in the current financial year.

CW/DPMA workshop next week

Date: December 1.
Venue: Holiday Inn, George Street, London W1.
Price: £45 plus VAT (£40 plus VAT for DPMA members) including lunch and refreshments.

I wish to order .... ticket(s) at £45 plus VAT (at 8%) for the CW/DPMA workshop ta be held at the Holiday Inn on December 1.

DPMA members can apply for reduced rate tickets via the form that is being sent to all DPMA members.

Cheques should be made payable to IPC Business and Industrial Training Ltd.

Name ....

Job function ....

Address ....

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.... Telephone number ....

If you are interested in attending any future workshop because the December 1 meeting is full or is inconvenient, tick here ☐

Return this coupon to Computer Weekly/DPMA Workshop, IPC Business and Industrial Training, Throwley Way, Sutton, Surrey SM1 4QQ.

COMPUTER WEEKLY in conjunction with the Data Processing Management Association is organising a workshop on December 1 aimed at improving the skills of DP management in communicating with end users.

The workshop will be given by Nigel Laurie, who has more than 10 years' experience in the communications and computer fields.

Numbers are limited to ensure that all delegates are able to participate fully in the day's work, but if there is sufficient demand, further workshops will be held.

In order to ensure that the workshop is tailored to DP management's needs, the DPMA is currently conducting a survey of its members on DP/user communications. Survey forms can be obtained from the DPMA, 27a York Road, Maidenhead, Berkshire SL6 1SQ. Tel: 0628 29070.

If you would like to attend the workshop, please complete the coupon above.

Polytechnic Systime

THE computer system installed at City of London Polytechnic, and referred to by Derek Esterson in his article on computers in schools (CW, November 17), is a Systime 5000 based on a Digital Equipment PDP-11.

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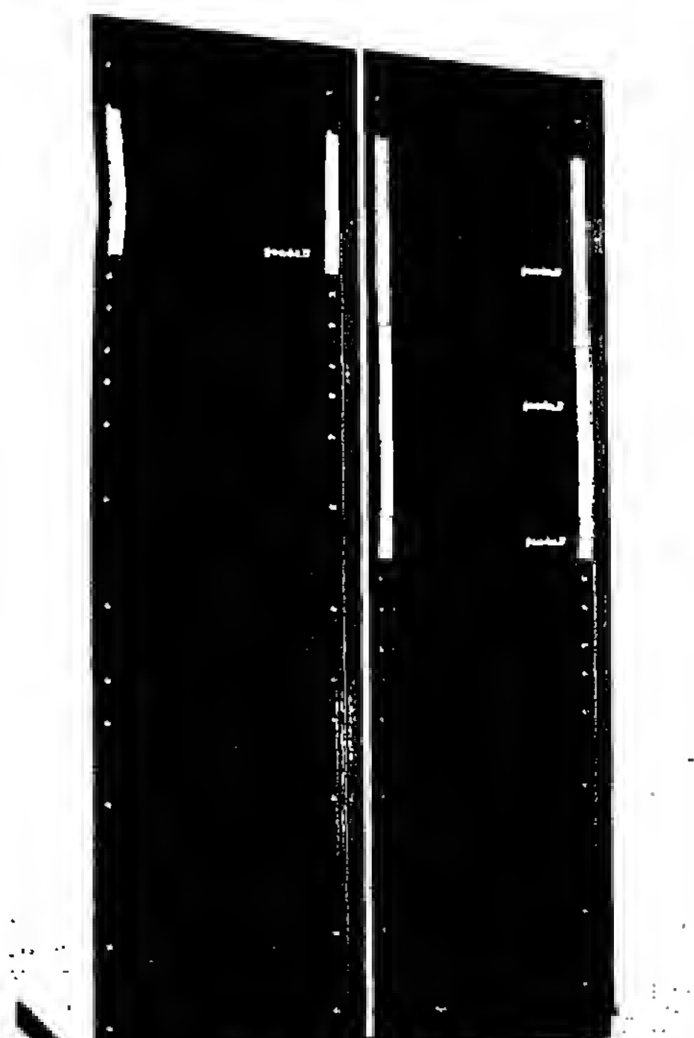

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MICHIE'S PRIVATEVIEW

Aha!–that flash of insight

IN the October issue of Scientific American Martin Gardner discusses the latest version of Robert Abbott's game of Eleusis. At the University of Colorado, Abbott, as a psychology student, became interested in the "ahs" reaction — that flash of insight in which we grasp the underlying principle behind some messy-looking phenomenon.

In Eleusis the dealer has a secret rule in his head which governs what cards may and may not legally be laid face up in sequence.

The players take it in turns to add to the lengthening sequence in an attempt to work out by trial-and-error guesswork, ie, by "inductive reasoning", what this secret rule is. Whenever they add cards which fail to fit, they collect penalties. Of the process of induction Gardner rightly remarks that it is "the process at the very heart of the scientific method."

Special interest should, therefore, attach to computer implementations of induction. Software systems are certainly needed to do more than donkey-work for the mathematician and scientist. Here, I note two recent laboratory advances in this area, one mathematical and the other in applied science.

The natural numbers, with the rules of arithmetic, constitute established territory for mathematical discovery, which in aggregate makes up modern number theory. There are tantalising problems which can be very simply stated. Probably the most celebrated is Fermat's conjecture that expressions of the form $x^n+y^n=z^n$ are not satisfiable for n greater than 2. Trial and error and inductive reasoning certainly play their part when mathematicians arrive at interesting conjectures. Could a computer program, set loose in this problem space, wander around looking for good conjectures?

One reaction is "If all it is going to give us are things like Fermat's conjecture, then why bother?" After the spectacular application of prime factor theory to computer privacy, see D. W. Davies' articles (CW, September 15 and 22), I hope that computer people of all people will not sell number theory so short!

Doug Lenat, working on Stanford's Heuristic Programming Project, developed a program which wanders around guessing in much the style alluded to above. Starting from bare essentials it rediscovered Euclid's "unique factorisation" theorem which states that a composite number can be factorised into primes in only one way.

This theorem is basic to the above mentioned encryption procedure.

Lenat's program, which has the curious name AM, first had to discover the concept of a prime number, and before that the concept of a number. It started life with a collection of concepts no richer than those of a child of four — objects like sets, lists, bags (sets allowing replication of elements) and truth-values; relations like membership and equality; operations like inversion, composition and intersection.

It would be a mistake to shrug off this experimental program on the grounds that it has not yet discovered anything which mathematicians did not already know about. One of its discoveries, "maximally divisible numbers," was at first believed by Lenat to be new, and by a number of mathematicians to whom he showed it. Later it turned out that Ramanujan, G. H. Hardy's self-taught collaborator, had got there first.

If from such modest starting materials AM can raise itself to these levels, what may not be achieved by an improved version working on an enriched stock of starting concepts?

If machine induction merely brightens the lives of pure mathematicians, the workaday world will be respectful, but unimpressed. Let us turn to a specialism which is more earthy, in more than one sense.

In the rich agricultural state of Illinois, when the soy-bean cultivator's crop has been smitten with one of the 20 or so common soy-bean diseases, correct diagnosis may make the difference between a ruinous harvest and riches. The State operates a network of Agricultural Extension Offices which farmers can phone for advice. Queries which cannot be dealt with on the spot are sent to university plant pathologists, who are greatly overburdened with requests. Large delays and backlogs develop.

An inductive inference program, AQ11, has been developed at Illinois University by Ryszard Michalski and students. It is quite general, and could just as well be given Eleusis problems. What it was actually given was data on 307 diseased plants as a list of measurements on 35 different features for each plant, together with a confirmed diagnosis.

From this the program developed its own diagnostic rules which were tested on 378 new cases, getting 374 of them right. Dr B. Jacobsen, the plant pathologist who collaborated on this work, developed his own set of rules, which scored only 83 per cent on the test sample. In attempts to improve them, the rate rose to 93 per cent. Jacobsen's verdict on the machine-generated rules, after investigation and reflection, was full acceptance.

The planned next step is to equip Extension Offices with terminals online to the new rule-based system, so that staff can get the farmers quicker, and it seems more accurate, answers.

Computing systems have heretofore been used only for deductive-type operations. But new additions to the information engineer's tool-chest may be on the way.

Donald Michie

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Puzzler

A SQUARE-BASED pyramid has eight edges and five vertices. This week's puzzle is to give each edge a different number, from 1 to 10, in such a way that "the sum of the edges meeting at each vertex" is 16 in all cases.

The big problem is to decide which eight of the available ten numbers must be used. See page 47 for the solution, which is unique apart from rotations and reflections.

SOFTWARE FILE

EDITED BY STEPHEN BELL

Business Basic 'first' on micro

THE range of applications software produced by consultancy KPG on its Solitaire system (CW, August 4) conceals an interesting systems software product – what is claimed to be the first business-oriented Basic on a microprocessor:

All the commercial packages on the Intel 8080-based Solitaire are written in this extended form of Basic and the machine has a resident interpreter.

KPG is, at present, releasing the Business Basic interpreter only to run the packages. A release for customers to write their own programs is a technical feasibility, but KPG does not have the resources to support such users fully, a spokesman admitted. A future release of this nature was not discounted.

Business Basic adds several commercially useful functions to standard Basic, particularly in the areas of string handling, screen and print formatting and management of indexed sequential files.

Solitaire in its present configuration is based on a three-processor 8080, CPU functions, I/O and visual display management each being handled by a separate machine. The Basic interpreter can, however, run on other 8080s and is quite easily convertible to other makes of micro, said KPG.

In the debate between compiler and interpreter philosophies for micros, KPG has come out wholeheartedly in favour of interpreters, largely because they allow immediate testing of code during program development. Some companies, favouring faster run-time, have plumped for a compiler approach.

KPG's current applications software for the Solitaire includes word processing, sales, purchase and nominal ledger, time analysis accounting systems for solicitors and accountants, payroll and estate management.

Many of these packages were implemented initially on the Basic Four minicomputer, ... Business Basic for specific clients. Development of the Solitaire interpreter allowed simple conversion.

Besides satisfying the requirements of purely commercial installations, availability of word processing and commercial software could encourage users to put both types of applications on the same machine, rather than implementing a dedicated word processing system.

£17,500 Mascot deal

AIMING to ease use of the Mascot software development technique with Coral 66, the Ministry of Defence has awarded a £17,500 contract to Systems Designers Ltd, to study formal definition of the Mascot methodology and implementation of the support software, in a way more amenable to Coral programming than to the present Algol 68 environment.

Some Coral implementations of the software have already been made, but it is SDL's eventual aim to make the software portable, to dovetail with its portable Coral compiler. Extensions will also be made to the Coral language to ease programming under Mascot.

Mascot was originally developed by the Royal Signals and Radar Establishment. SDL's initial Coral versions of the support software, for the Texas Instruments 990/9900 series and the Prime 300, will appear early next year. An initial version of the methodology document is already circulating.

Disc space manager from Macro 4

YET another product has been added to the growing range of IBM-oriented disc-space management aids on the market. The latest product, Spaceman, has been released by Macro 4, of Wallington, Surrey.

Spaceman was originally developed by Corodale, Macro 4's Dutch Associate company and already has three users in Holland. There are, as yet, no UK users of the package.

Oriented to IBM 370 DOS/VS environments, it is claimed to avoid several points of incompatibility with standard IBM software.

In particular, non-standard Volume Table of Contents entries are avoided and Spaceman's job control language is claimed to be able to coexist with standard DOS/VS JCL.

Having defined the initial extent of the required disc space and a few other controls, Spaceman requires no more JCL cards relating to placing of disc files, says Macro 4.

Files are arranged automatically in an efficient way, and unused space on a file is freed for future use.

The user can however, control the order in which the discs on line are examined to decide the placing of the files.

Seven partitions are supported, and JCL is partition-dependent. Thus a given ... be executed in any pa... easing job scheduling. The software maintains an ... catalogue of disc utilisation, generates a range of statistical reports. Spaceman costs £... per month.

At the same time, Macro 4 announced further enhancements for Logout, the product which prints relevant parts of the console log on a user's ... run printout.

The product can now ... console messages requiring a reply, so that the user can submit the replies in any order without holding up work.

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Parameter driven pensions scheme

ANOTHER package has been released to aid company administrators to cope with increasing government legislation, this time in the pensions area. The Passman software, from financial software consultants Heywood and Partners of Liverpool, is particularly concerned to handle the requirements of the 1975 Act of Parliament on this subject.

Passman is a parameter driven system which maintains files of all a company's pensionable employees, continually updating the records with all entered pension transactions.

Required government forms are generated as well as user-defined internal reports, auditors' information and periodic — usually annual — pension statements.

The package is written in Cobol and avoids machine-specific subroutines as much as possible, said a spokesman. Hence it should be easily portable. At present, versions exist for IBM 360/370 and ICL 1900 and 2903/4 machines, but one of the first prospective users requires a conversion to Univac equipment.

Non-standard modules can be added to the Passman system to manage accounting of pensions contributions and payroll for employees and dependants entitled to a pension.

There are already about 10 "highly probable" prospective users of the package, said Heywood. Passman can be used on an in-house machine, or Heywood's ICL 2004 bureau.

CMG 'first' with overseas system done in UK

WITH the problems of UK software development work for overseas clients receiving much attention in recent months (CW, June 9 and November 10), the Computer Management Group has completed its first development of this type, for an unnamed multinational manufacturing company's Helsinki, Finland, office.

The project, worth £25,000 to CMG, involved the design and implementation of an accounting and manufacturing control system for the IBM System 32. The software includes sales, purchase and nominal ledger, stock control, monitoring of work in progress, cost accounting and collection of statistics.

CMG has done work for many overseas clients before, but the jobs have always involved considerable work at the customer's site. Design, coding and testing for the latest project were done completely in the UK, with test data being sent over from Finland. Only now has a CMG representative gone to Finland to supervise the installation of the software.

The product was written with flexibility in mind, and will also be implemented by the client on its installations in other countries. It can be transferred to the IBM System 34, or, with small alterations, to the System 3, claims CMG.

The software could be marketed generally through CMG in the future, said a spokesman, but a definite agreement had not been made to do this.

CGS plans move into US market

A MOVE into the US market is likely for the European CAP-Gemini-Sogeti consultancy group next year. No firm arrangements have been concluded yet, chairman Phillipe Dreyfus told Computer Weekly, but CGS is definitely investigating the possibility of founding a US office.

At the same time, M Dreyfus confirmed that between 10 and 15 per cent of the group's shares have come on to the market. These shares belonged to two former directors who left the group two years ago. Contrary to US reports, the group is not looking for a US company to acquire the shares. "They may be taken by any company, US, European or British," said Dreyfus.

Online accounting on an ICL System Ten

VENTURING further into the field of software products for the ICL System Ten, Safe Computing of Leicester has developed an accounting suite for the machine comprising sales, purchase and nominal ledger systems. The product is known as Solar (Safe's On Line Accounting Routines).

Solar has the dual aims of speed of response and ease of use, says Safe. The user interface is interactive, prompting for required information. Such prompts are particularly useful for novice users, and can be avoided when a user becomes experienced.

The packages can be easily tailored to a company's requirements, claims Safe; a factor which is particularly useful for users converting from manual systems.

The Solar package can reflect the manual procedures and interface with them during a gradual cutover process. It can also be tailored to individual System Ten configurations by addition of small modules.

Solar can be fully interfaced to Safe's production control software, SafeS, also implemented on the System Ten.

Dynamic OS

THE latest operating system for Interdata, Dynamic OS/32 MT, and its associated Multi-Terminal Monitor (CW, October 27) have, as expected, been officially released in the UK. The operating system is priced at £3,350 and MTM at £1,680.

'Switch to rival' threat for VSPC

RENEWED criticism of IBM's Virtual Storage Personal Computing time sharing software is emerging, particularly in the US, almost two years after the product's release. Some similar snags are evident in the UK, and reliable sources indicate that at least one UK user is contemplating changing to a rival product.

When VSPC was first released there were some misgivings about its capability, particularly in the areas of price-performance and resource consumption.

IBM's announcement of the product was unusually low-key, leading to suspicions that it had been released before it was really ready (CW, December 18, 1975). Users accepted, at the time, that there would probably be some "teething troubles."

The shortcomings, however, appear to have persisted, in two vital areas—resource consumption and interface with other IBM software, particularly Vsam and Vtam.

There are also disturbing reports from the US of VSPC abends bringing down the whole system, or necessitating a deliberate halt to processing.

Such troubles have led at least to two US users, the Centre for Disease Control in Atlanta, Georgia, and Portland General Electric, Oregon, to consider discontinuing VSPC use. The latter installation reported that it used to have daily VSPC failures.

The position had improved, but nine days was still the record time between failures. Efforts to improve it led to operating system enhancement falling behind.

The Centre for Disease Control reported that VSPC was tying up machine resources to the detriment of other users. The only way to remedy this was to cancel VSPC. This resulted in the loss of related data, such as APL workspaces, although this was not supposed to happen.

One UK user supported this criticism. The installation, said a spokesman, could live with the increased resource consumption of VSPC if it could control the priority of the system at times when non-VSPC work was more important.

Generally, however, UK users' troubles have not been so severe as those in the US, though the Vtam and Vsam interface problems seem to apply equally to both countries.

Assessment of IBM's support efficiency varies. One user said that the company had been "very good" at responding to problems, but another thought that the IBM in the UK was comparatively short on VSPC expertise, due to the smaller user community.

PL/I versus Algol 68 debate

FEW software topics arouse more energetic dispute than the advocacy of one programming language over another. The audience at a debate sponsored by the BCS PL/I specialist group, on December 1, is thus assured of an interesting evening.

The motion for debate will be "Anything PL/I can do, Algol 68 can do better". Prominent advocates of the two languages are expected to speak, though the final line-up has not yet been decided.

Venue is the engineering lecture theatre (Room 508) at University College, Gower Street, London, WC1. Admission is £1, and free Real Ale will be available.

PROGRAMMER NOTES

Ode to the joys of freelancing

MANY of our past discussions on the programmer's life have made the tacit assumption that most of our readers are permanently attached to one particular company.

With the increasing prominence of the freelance programmer, this view, and its attendant discussions of such topics as "your installation's programming standards", are perhaps becoming less and less consistent with the real state of the modern programming world.

Perhaps it is time we gave the freelance programmers a platform to discuss their view of the joys and problems of programming.

To consider the above question first: most installations nowadays have, for good or ill, their own program development techniques and standards, ranging from comprehensive strategies like the Jackson technique to simple data naming conventions.

It would be interesting to see whether freelance programmers fit in easily with these established environments, or whether it is a source of conflict.

Does the installation try to impose its standards on you and, do you, in consequence, have to be flexible? Or do most installations allow a freelance to program in his or her own style, risking possible conflict with the permanent programmers?

The problems of selection of appropriate programmers acquire an entirely different complexion in the freelancing business.

The employer knows that if a freelance proves inadequate to the job, he or she can be dismissed with less difficulty than a regular employee.

On the other hand, the employer is more willing to train an inexpert permanent employee than an inexpert freelance.

Most freelances have had experience of permanent programming posts. Do you find employers more assiduous in assessing your expertise when being interviewed for a permanent position or for a freelance job?

The increasing proportion of freelances and prospective freelances was graphically illustrated last week at a meeting of the Association of Independent Computer Specialists. More than 120 people turned up to hear about the advantages and disadvantages of freelancing.

What is the reason for this trend? Are permanent programmers simply bored with government-imposed limits on pay rises and see this as a way of getting a sudden jump in salary; or are there other attractions?

Do you get a more interesting variety of work as a freelance, or do you become known as an expert in a certain field and get recruited to an endless stream of identical programming tasks?

There must be a number of interesting technical and personal consequences of transferring from a regular to a freelance life. Programmer Notes hopes that the freelances among our readers will come forward with some happy, sad or even humorous experiences.

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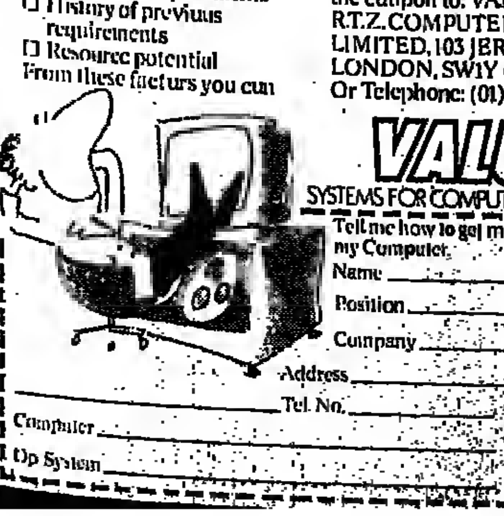

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PEOPLE

Telephones for deaf from computer centre

CHILDREN at the Royal School for the Deaf in Derby can now use the public telephone system, thanks to the staff of the Derby Post Office Computer Centre.

The Centre's Benevolent Society has donated to the school two phonetypes, which convert into a typed message at the receiving end.

The phonetype is a reconditioned and adopted Post Office telex machine, for which the official UK supplier is the Breakthrough Trust at Wellingborough.

Deaf people can make calls to ordinary telephones through one of the five or six link-up centres throughout the country, and this is particularly important to the children of the Royal School, who come from all over the UK and who can now telephone their parents when they are at school.

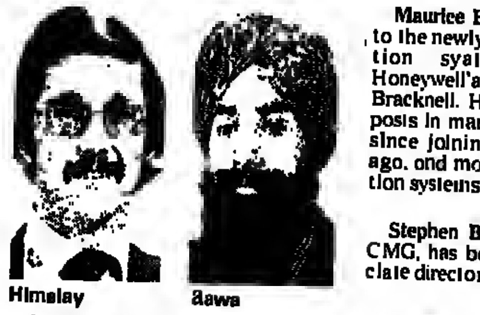
The machines can also be used as an internal link between the school buildings, and will help any children to increase their language ability, said the principal.

Peter Thomas, former senior sales consultant with ICL, has joined the commercial systems division of Computer Automation as Southern region sales manager.

Other newcomers to the division are **Ivon Toager**, previously high-volume product support manager with ICL, who joins as customer support manager; **David Mundy**, formerly a systems analyst, who becomes a systems engineer; and **Cheryl Lewis**, who was a project administrator with ICL, and who will run the new planning and admin department.

Bill Butt, who until recently was commercial and OEM systems manager with Varian, has moved to Wang as computer products manager in the technical and commercial sales division.

Richard Forsyth, lately academic programmer at the City of London Polytechnic, has moved to Rair Timesharing as software manager. **Tony Green** has joined Rair Terminals as senior sales engineer for the UK and Europe. He was formerly logistics manager in Cossor's service division.



Himsley Bawa

Arvinder Bawa has been appointed support engineer with Atkins, and joins the company as leader of the Civil engineering team. He was formerly with consulting engineers Binnie and Partners. **David Himsley** also joins Atkins as a support engineer, and will be concerned with the support of ASAS. He was formerly with Hunting Engineering.

Kenneth Walker becomes financial director of Kode. He was previously with Mono Containers as financial director.

Neilson Kite, previously publicity manager for ICL Dataskil, becomes PR manager at BOC Datasolve. **Jim Horsley** joins Datasolve as publications executive. He was formerly a journalist with Southern Newspapers.

Maurice Bean has been promoted to the newly-created post of protection systems manager for Honeywell's commercial division in Bracknell. He has held a variety of posts in marketing and distribution since joining Honeywell 36 years ago, and most recently was protection systems specialist.

Stephen Bishop, consultant with CMG, has been appointed an associate director of CMG West End.

Pat Muir of Rediffon Computers has been promoted from senior systems analyst to Southern branch systems manager, based at Leighton Buzzard. Systems analyst Janet **Fooks** becomes systems supervisor responsible for the showroom and demonstration capability in Stratton House, London.

Fooks

Muir

Dickenson-Standing Barklay

Ian Dickenson-Standing has been appointed managing director of Atlantic Computer Leasing's recently-formed Industrial Leasing Company. Previously he was area manager of the London and Home Counties division of Barclays Bank's Export and Finance Co.

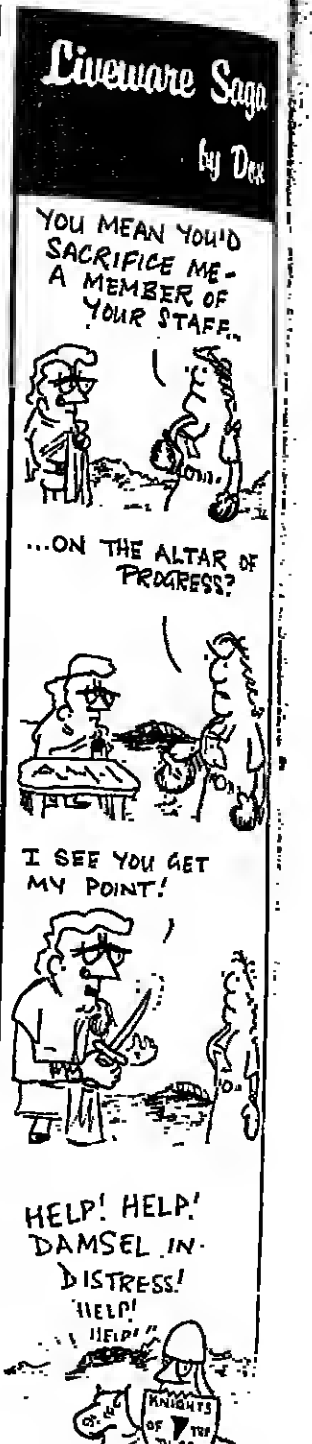
Janet Holliday and **Andrew Fowler** have joined Pentagram Software Products as programming consultants in the software services division. Holliday was formerly a programmer with Esso, and Fowler was a programmer with Food Securities.

Stephen Berkley has joined Qume in Hayward, California as vice-president, business development, from Pollach Corp, also of California, where he was manager of strategic planning.

Dave Lawrence becomes plant manager of Digital Equipment's Ayr factory. He is replaced as North European region field service manager by **John Barrett**, previously field service manager for the Northern UK and Ireland.

Nevill Simmons, until recently large systems manager for the East Region with Honeywell's field service, joins Membrain as customer service manager.

Robert Schuhmann, lately of Control Data where he was Los Angeles district sales manager, has gone to MSI as director of North American sales.



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Thursday, January 19th, 1978

Objectives:

To provide DP Managers and Personnel Officers of firms using computers with an overview of current practice in the recruitment of computer staff.

Shortage of computer staff is a problem which faces all computer users. A lack of qualified personnel is exacerbated by the mobility of computer people and their apparent loyalty to the job rather than the organisation.

In these circumstances recruiting suitable staff poses particular problems: How does the user set out to attract staff? How does he advertise effectively? How does he manage the selection process? Should he use a recruitment agency? Is the use of contract staff a viable solution?

The seminar will seek to answer these questions and to indicate what the computer user should do in order to formulate a successful recruitment policy.

Session 1
Introduction. The computer scene and computer people. Who are they? What are their characteristics? How are they motivated? Can supply ever catch up with demand?

Session 2:
The user's viewpoint: Finding a way through the recruitment jungle. How can the computer user act effectively to obtain the staff he needs? How should he set about recruiting staff? What are the pitfalls? Planning staff recruitment and development rather than reacting to crisis situations.

Session 3:
The role of the recruitment agency: Identifying users' staff requirements. Specifying the post. Drafting the advertisement. Vetting the candidates. Giving the user the benefit of specialist knowledge of the job market.

Session 4:
The NCC Job Selection Service. Systematic tests to assess applicants' qualities can provide a standardised base for selection when compared with national norms — thus providing a useful aid in the selection process.

Session 5:
How to advertise for computer staff. Specifying the job and the working environment. Writing the advertisement. Adopting a creative approach to job advertising. Media selection. Monitoring response.

Session 6:
The DP Manager. Picking the right man for the most responsible job in the computer dept. Fewer in number than other categories of computer staff, good DP Managers are worth their weight in gold. The post demands a more generalist, less specialist approach than programming and systems analysis. Spotting those with potential requires a keen eye and a wide ranging knowledge of the business. Filling this key post is a task for a reputable recruitment bureau.

Session 7:
Contract Staff: Increasingly contract staff are being used to overcome work bottlenecks, help in conversion programmes, etc, as well as compensating for variations in staff availability due to holidays and sickness. Now the use of contract staff is such a well-established feature of the computer scene that it merits inclusion in an overall appraisal of the recruitment problem.

Session 8:
Maintaining standards in the recruitment business. The CSA has established a recruitment division. What are its aims and achievements? A consideration of the code of conduct.

The speakers will include Tony Miller of Furness Withy, David Payne of Tesco; John Wood of EMS; George Penney of the NCC; John Goldsmith; Ian Humphries of Knight Computer Services and Neville John of OCC, chairman of the CSA Recruitment division.

Please reserve .... place(s) at the "Solving the computer staff problem" conference to be held at the Cafe Royal, London W1, on Thursday, January 19th, 1978.
The fee is £55.00 plus 8% VAT (£4.40). Invoice will be sent.
Please send confirmation of booking to (CAPITALS please):
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Telephone 01-643 8040

DIARY

NOVEMBER 28
Proving chess strategies correct. Edinburgh University Machine Intelligence Research Unit. Hume Tower, George Square, Edinburgh. 17.15.

NOVEMBER 28-30
Managers, databases and information systems, conference. IFIP/IAG. Amsterdam.

NOVEMBER 28-DECEMBER 2
Automatic testing and IEE/IERE conference. Metropole Convention Centre, Brighton.

NOVEMBER 29
A year's change. Philip Hughes. BCS, ACM Chapter. Polytechnic of Central London, London W1. 18.30.
Electronic security and personal access systems, colloquium. IEE/IERE. The Royal Institution, London W1. 10.00.
A review of do-it-yourself computing. Dr M. Henley. Institution of Electrical Engineers. IEE, Savoy Place, London WC2.
Development and exploitation of programmable automation, symposium. IEE/IMechE. Institution of Mechanical Engineers, London SW1.
Computing in Hospitals. Dr E. C. Coles. Data Processing Management Association, West of London to Oxford branch. The Bull, Garrards Cross. 18.45.

NOVEMBER 30
Management Education Seminars — Unions in the computer room. Tim Webb, Ted Cluff. Data Processing Management Association. Montcalm Hotel, London W1. 14.00.
British activity in online information services. David Martin, Dr Philip Holmes. BCS Information Retrieval Group. City University, London EC1. 14.00. Tickets £1.00 from Information Retrieval Secretary, Scicon, 01-580 5599.
Inaugural meeting. BCS Formal Aspects of Computing Science Group. University College, London WC1. 14.00.

NOVEMBER 30-DECEMBER 1
Meeting. IBM Computer Users' Association Local Authorities Group. County Hall, Wakefield, Yorks.

DECEMBER 1
Pattern-based chess knowledge in man and machines. D. Michie. Edinburgh University MIRU, James Clerk Maxwell Bldg, University of Edinburgh. 17.15.
Who needs cash anyway? J. M. Large. BCS, Oxford branch. County Council Staff Restaurant, Paradise Street, Oxford. 19.45.
Ceefax, what it does and how it works. BCS, Chester and N Wales branch. Queen Hotel, Chester. 19.30.
The Intelsat V system — satellites and earth stations colloquium. Institution of Electrical Engineers. IEE, Savoy Place.

Anything PL/1 can do, Algol can do better, debate. BSC PL-1 Group. Engineering Lecture Theatre, University College, London WC1. 18.00.

DECEMBER 5
Big brother is watching you. BCS, East Anglia branch. Union offices, Norwich. 19.00.
Program design. Michael Jackson. Glasgow branch. Daniel Brown's Restaurant, Glasgow. 19.00.
Social aspects of machine intelligence. Edinburgh University Machine Intelligence Research Unit. Hume Tower, George Square, Edinburgh. 11.15.

DECEMBER 6
Operations, profession or trade? Walter, Ted Cluff. BCS Operations Group. BOC Datasolve, Hammersmith. Blacks Road, London W6. 18.00.
Computerised animation. BCS, NW London branch. Greenford, Middx. 19.00.
APL Group meeting. BCS, Hampshire branch. Portsmouth Management Centre, Portsmouth. 19.00.
Word processing. M. Robins. BCS, Wolverhampton branch. The Polytechnic, Wolverhampton. 19.00.
Subject selected by speaker. Michael Heseltine, MP. BCS, Merseyside branch. Adelphi Hotel, Liverpool. 17.00.
A systems approach to pictorial pattern recognition — lecture series. Nadler. Machine Intelligence Research Unit. Chess Lab, MIRU, University of Edinburgh. 10.30.

DECEMBER 6-7
General meeting. RTL/2 User Group. Excelsior Hotel, London (Heathrow). Details: SPL International, 01-

DECEMBER 7
Management Education Seminars — How to succeed with standards. Crocker. Data Processing Management Association. Montcalm Hotel, London W1. 14.00.
Exhibition and demonstration of university, schools, industrial and other services projects. National Development Programme in Computer Assisted Learning. Addison Restaurant, Olympia, London. Details: 01-637 8552.
Developments in data capture. Malcolm Brighton. BCS Study Group. Computers in Survey Analysis. Polytechnic of North London, London N7.
Performance management in HM Customs and Excise. Neville Victor Whittington. BCS. The Bull's Eye, Basildon.
Student evening. BCS. Brighton Polytechnic. Brighton. 19.30.
Medical care management. BCS, Belfast branch.

New Molecular system from BCL

IN response to requests from its users, Business Computers (Systems) Ltd has made dynamic program relocation one of the main features of the Molecular Series IV, which it has just introduced. This supersedes the Molecular II and III systems and provides twice as much directly addressable memory in a processor cabinet that occupies half the floor space.

BCL explains that the dynamic program relocation facility has been developed to make more efficient use of main core memory. It enables small pockets of unused core to be used collectively by relocating other programs. This makes the unused spaces contiguous without disturbing the programs already in operation.

The 128K words of directly addressable core memory on the Molecular IV enable 27 programs to be run simultaneously in a multi-programming mode together with the operating system and file control suite.

The reduction in size of the processor cabinet has been achieved mainly by the use of switched-mode power supplies which generate less heat than older types of power supply.

Other significant new features on the Molecular IV include a real time clock which can measure the run times of programs in order to optimise overall processing time. Terminal operations are made more efficient by a block transfer facility which enables complete screens of data to be transferred to the processor with only one interrupt.

The Molecular IV can handle up to 64 peripherals, including a mixture of 10 and 50 Megabyte drives. These can provide a total disc capacity of 200 Megabytes.

The Molecular IV is totally software compatible with the older Molecular machines and can be supplied with BCL's existing range of accounting packages as well as the Molecular real time multi-programming operating system and the high level language, Management Report Generator.

Canadians pass privacy laws

LAWS protecting personal information held in both manual and computerised systems have been passed by the Canadian government.

The laws are limited to government organisations but a privacy commissioner, who will be appointed to receive and investigate complaints, will also consider whether the laws should be extended to cover the private sector.

Under the laws, individuals will be able to demand to see information held on them. Exemptions include cases where international relations or national security might be at risk or where the individual could be harmed by seeing the information.

Individuals must be consulted in writing before data collected for one use is put to another use not connected with the first.

A named minister in each government department will be responsible for ensuring that his department complies with the laws. He must also co-ordinate the collection, storage and use of data to ensure that the unnecessary collection of data is avoided.

He will have to review the use of files so that he can recommend the closing of files that are improperly or infrequently used.

The minister will be first in the firing line from the privacy commissioner, as he will receive reports of the commissioner's investigations of complaints and have to implement his recommendations or explain why no action is being taken.

Tory plans for NEB

UNDER a Conservative government the National Enterprise Board will lose its powers to acquire companies, and those organisations in which it already has a share will be sold off. Norman Lamont, an Opposition spokesman on industry, told Computer Weekly that these proposals had been discussed with the NEB.

He added that in its restricted form the board was likely to remain as the State authority that would continue to hold the companies it was unable to sell. This would be only an interim measure, said Lamont, and no long-term plans had yet been formulated.

These changes could mean that Insac, the NEB's systems and software subsidiary, which has a share in such successful companies as CAP, SPL, Systems Designers and Systime, could be wound up, sold, or become an independent operation.

Whether in such a case the government would retain its share in the venture is not at present clear.

ICL move on Tesco shelved

A MOVE by ICL to take action against IBM, under EEC regulations, over the terms of the £6 million Tesco order (CW, November 17), appears to have been shelved.

Commenting on the report, an IBM spokesman said, "We have received no indication of legal action by ICL over our proposals to Tesco. It is IBM policy not to offer discounts or to treat customers preferentially."

Following a meeting at which the companies discussed the matter, IBM said it understood that ICL now considered the matter closed. There has been no comment from ICL.

Neddy move on UK software

● From Front Page

that projections showing the likely numbers of computers to be installed do not consider the effect on jobs. It calls for urgent studies to be carried out as a collaborative effort between the government, management and unions.

The sub-committee's recommendations on education and training follow a survey of 150 computer manufacturers, users and service companies which showed that there was not enough formal training being done, that it was on a very ad hoc basis, and done mainly by manufacturers.

Commenting on the recommendation regarding British minicomputer software, Logica says, "We have no tie-up with any manufacturer. We chose the right hardware for the job. The client's needs have to be the final priority."

A similar view came from Computer Analysts and Programmers, which is 30% owned by the government through the National Enterprise Board systems company, Insac.

Barry Mellor, managing director of UK minicomputer manufacturer Digico, said, "Our kit is pretty well general purpose and such good value for money that a lot of people could use it when they don't want all the facilities provided by US minicomputers. But at the same time it's very silly to put blinkers on and say everyone should buy British."

BETA refund

A £30,000 refund to members of the British Equipment Trade Association who exhibited at the International Business Show in Birmingham, has been announced by Ron Watson, retiring president of BETA. The rebate comes from a cut in stand charges to members from £27 to £25. Managing director of the Ofrex Group, Andrew Andrews, is the new BETA president.

Optical telephone link 'first'

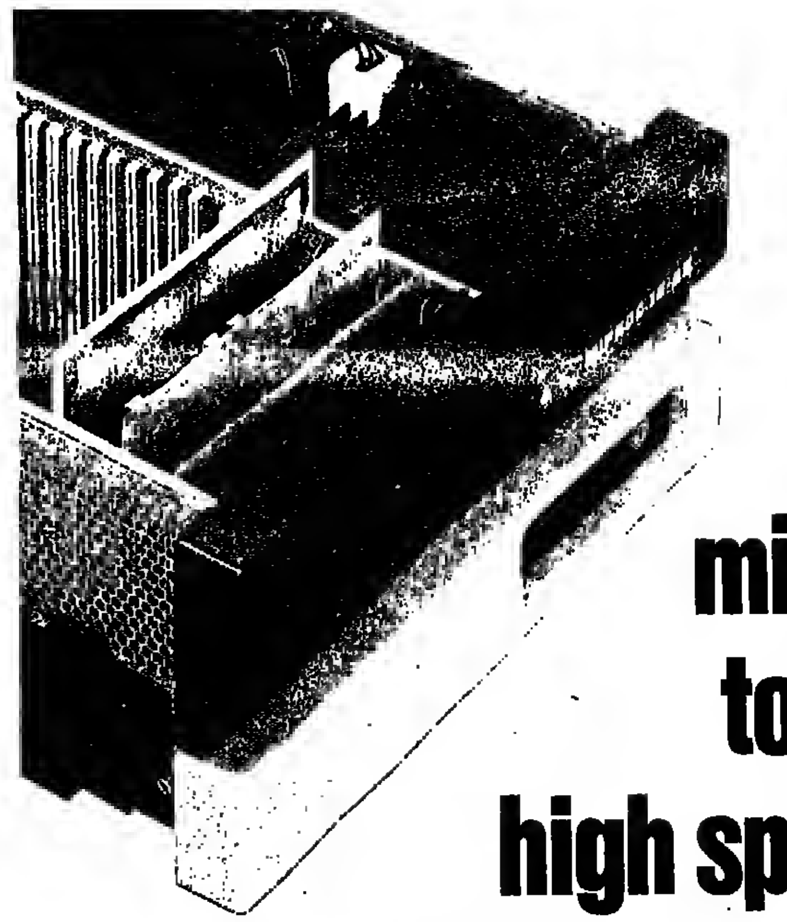
THE shape of things to come in telecommunications is illustrated by this photograph which compares copper and fibre-optic telephone cables of similar capacity. GTE Telephone and Electronics Corp of Waltham, Massachusetts, claims to have the world's first optical telephone link following installation of a 24-channel fibre-optic cable between the General Telephone Company of California's long-distance switching centre in Long Beach and the local exchange building at Artesia, 5.6 miles away.

Voice signals are first digitised and then transmitted to a light emitting diode attached to the optical cable. Once they have travelled 1.6 miles, they reach a repeater in which they are reconverted into electrical pulses which in turn stimulate a second light-emitting diode. They pass through a second repeater before they reach the other end of the link, where they are reconverted by a photo-detector into ordinary electrical signals.

The prime advantage of optical over electrical telecommunication is the enormously greater traffic capacity of comparably sized cables. This means that optical cables can be inserted into existing cable ducts in cities without major disruption in the streets.

The limitations at present lie in the short lives of the light emitting elements and the number of repeaters needed.

In the UK, STC's optical fibre developments are at a comparable stage to those of GTE (CW, November 18).



Miproc 16-AS, micropower to give you high speed faster.

Internationally acclaimed Miproc-16 with a compute-rate of 2.8 million instructions per second is the fastest 16-bit microcomputer card family available.
Now, supplied with an OEM chassis package, Miproc-16 is brought into action even more quickly.

The businesslike application system, named Miproc 16-AS, has room for one, two or even three Miproc-16 CPU's. Smartly styled and equipped with add-in 13-slot card bay modules, fans and power supply, this new OEM chassis package eases the way into high speed microcomputing.

Instruction Power
Up to 170 instructions including multiply/divide and bit manipulation give Miproc-16 formidable processing capability.

16-bit Power
16-bit program words make programming easy. 16-bit data words maintain high precision in arithmetic operations.

Addressing Power
16-bit dual memory architecture gives 65k words of directly addressable program memory *and* 65k words of data memory with 8 powerful address modes.

Interrupt Power
Multilevel, priority vectored interrupt system handles context changes in less than 2 microseconds.

I/O Power
256 directly addressable I/O channels with data I/O rates of up to 1.7 megabytes/sec. under program control, and up to 20 megabytes/sec. for DMA.

High Speed Processing Power
The unique dual memory architecture combines with high speed Schottky TTL technology to execute most instructions in a single 350 nanosecond machine cycle.

Software Power
Easy to use cross-assemblers for mainframe or minicomputer make programming faster, *and* PL-MIPROC, a super-efficient high level assembly language.

Hardware Power
Comprehensive range of processor, memory and interface cards backed up by sophisticated hardware development aids.

Ruggedized Power
Miproc can be configured to meet any known military specification.

'Miproc' is a registered trademark.

PLESSEY MICROSYSTEMS

Plessey Microsystems, Water Lane, Towcester, Northants, United Kingdom NN12 7JN. Tel: Towcester (0327) 50312. Telex: 31628

Alan Senior, Plessey GmbH, Motorstrasse 56, 8 München 40, West Germany. Tel: (089) 351-60-21

654 PP 046

LETTERS

Power at Datafair

I SHOULD be groteful if you would correct an error of fact in the final parngraph of Focus (CW, October 20).

There were no powcr problems at Datafair. So smoothly did it all go that one of the IBM executives remerked to me nostaigically "it's not fair – why aren't we having any dramatic power cuts?". Shades, I understand, of 1975. But that was two years ago – perhaps your correspondent never recovered from the trauma!

P.S. Just rememberedl A fuse went on the third floor due to an overload in one of the technology corridor rooms. This was attended to in the record time of four minutes flat. I know, I was there all the time, and it only affected the five rooms involved.

RUTH REES
Conference Organiser
Datafair

Comment from Focus: *"I was there during the four minutes blackout. Perhaps I'm getting too shocking!"*

Demonstration

IN the report on the exhibits et Datafair (CW, October 20), the demonstration of bubble memories by Plessey Memories was mentioned and it was said that the demonstration was not operating.

We would like to stress that alihaugh a short mains power failure in the hotel caused a temporary stoppage of output VDU, in fact, tha non-volatility inherent in the bubble memory system ensured that none of the stored information was lost, so that the demonstration was able to continue immediately mains power for the VDU was restored.

P. C. NEWMAN
Product Manager,
Magnetic Bubble Memories
Plessey Menuries,
Towceater.

Interrupt misses punchline

YOUR "interrupt" contributor seems to have missed the punchline.

The point about the Titan simulator, if I remember it correctly, was that it *always* said "system full" after you typed in your password; thus you would never know that you had given your password to the simulator (which could be left running at an unattended terminal) rather than to Titan itself.

This simulator would write the user identifier and password to its own filestore and the victim would never be any the wiser.

MICHAEL KAY
Crowthorne,
Berks.

No guarantees in this unpredictable world.....

IN his letter Peter Hsine appears to present a very short-sighted view of the efficacy of professional standards in preventing disasters (CW, October 27). He lists several computer applications which have in common the factor that human life or something else of vitnl importance can depend on the satisfactory performance of a computer system, and he goes on to suggest that such standards provide a guarantee of this performance and a means of redress should it be lacking.

Surely he cannot be unaware that in this unpredictable world in which we live no guarantee of any such thing is possible, and that nothing can provide real redress for loss of life, or indeed for meny other grest catastrophes.

Mistskes occur in all fields regnrdless of whether there is a code of professionnl conduct governing those responsible; plnes crnsh, bridges fall, patients suffer needlessly, millions of pounds get embezzled, and we must live with the fact that the frequency of such happenings can sometimes be reduced, but that they can never be eliminated altogether.

Integrity and skill are excellent things ot which to nim, hut they nre just as excellent for those who work in areas where they cannot aspire to professional status se for those who do. If computing is to become an established profession, it will have to be based on something more than a mere codification of the sort of standards which should be exhibited by all.

The lack of success which advocates have had in convincing anyone but themselves that anything more than these basic standards is involved may perhaps be taken as an indication that it will not so become unforeseeable future.

K. A. JOHNS
Welsh National
School of Medicine
Cardiff.

Cash dispenser net

IN your report on the installation of cash dispensers in the Trustee Savinga Bank (CW, November 3) it is claimed that this is the only cash dispenser network in England debiting accounts in real time.

The Cashpoint system of Lloyds Bank was introduced in December, 1972, and has always been based on an online real time operation. We find it surprising that you should report an event as a breakthrough some five years after our introduction of Cashpoint.

Lloyds Bank has always maintsined, in the face of considerable opposition, that the only system acceptable to bank customers must rely on real-time authorisation from a central dstsbase containing up-to-date information.

We have some 800 machines installed, and an ever-increasing number of Cashpoint cards in issue provides the evidence that our decision in 1972 was correct.

G. B. HAGUE
General Manager
Lloyds Bank, London.

OP SPOT By Bernard Allen

Role of the job control section

THE job control section has a vital pert to play in the day-to-day running of an installation. Its role is fundamentally that of co-ordinator between the user and the computer room, and in doing this it should provide the user with a service and the operators with any information they need to carry out their function.

Any jobs submitted through the job control section should be accompenied by an adequate level of documentation informing the operators of the requirements of the job. The facts releted should include disc usage, tape requirements, priority and any special requirements and deadlines to be met — anything, indeed, which will save the operator time.

The service the section provides for the user should be of a particularly high standard. He should be able to find out the stetus of his job, the state of the system or the likelihood of obtaining machine time at short notice, and should his job be returned incomplete, the section should endeavour to find the cause.

The job control section should be constantly aware of what is happening in the computer room and provide an efficient method of controlling the flow of work within the installation.

There are several methods by which the section can communicate with the computer, some of which are obviously superior to others. It seems ridiculous that job control personnel should actually have to visit the computer room in response to user inquiries. Yet in some installations this is the case.

To keep in touch with events in the computer room it is a good idea to maintain and update a chart of system resources. In doing this the section can keep a record of any units which are under service and act accordingly should this affect work flow. Similarly, this scheme can be employed when planning work, which is often done a week or so in advance.

An excellent idea is to have a console or similar device within the section, providing job control with a method of direct inquiry into the state of the system. This, of course, is a moot point because operators sometimes feel that job control will want to use this facility for the wrong reasons. They may feel that their position is being undermined.

Many installations support large TP networks, and the situation is chaotic when the system is down or in a loop simply because the users are not informed promptly of what is happening. When this happens, users often inundate the computer room with inquiries, when in fact the job control section should handle the matter. A method of informing users quickly when a system fault occurs should be devised.

In some installations operators are given the chance to spend time in the job control section, and this provides them with a better overall view of the manner in which the installation is organised and run. It also enables them to consider the problems faced by the job control section, because the relationship between the operator and the section is often strained. And the cause is a lack of awareness of each other's problems.

SPECIAL LOW PRICE ARRANGEMENTS FOR VISITING OVERSEAS TRADE FAIRS

IPC Electrical-Electronic Press Ltd., the world's largest publishers of computer, electrical and electronic journals, have made special arrangements for readers wishing to visit important overseas trade fairs. The cost, in most cases, is little more than the normal air fare but includes – travel by scheduled airline from Heathrow and Manchester ✳ first-class hotel accommodation ✳ arrival and departure transfers ✳ admission to the trade fair ✳ services of an experienced tour meneger. The current programme comprises the following tours.

To obtain a brochure and booking form, tick the box against the tours in which you are interested, complete the coupon and post to the exclusively appointed travel agent, Commercial Trade Travel Ltd., Carlisle House, 8 Southampton Row, London WC1.
Telephone: 01-405 8688 or 01-405 5469

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COMPEC EUROPE ☐	Brussels	May 9-12
SICOB ☐	Paris	September 20-22
ELECTRIC VEHICLE EXPO ☐	Philadelphia	October 3-5
NUCLEX ☐	Basel	October 3-7
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Your DP operation is results-oriented. Informatics products are, too. Which is why it will be worth your while to see us about your software needs, and the Informatics products that suit them best. You'll find we talk the same language.

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informatics

MICRO NEWS

Siemens in joint venture with AMD

THE joint venture company formed recently by Siemens and Advanced Micro Devices (CW October 13) may still lack a name to operate under, but is not without plans.

Two facilities are to be established, one in Sunnyvale, California, and the other in Munich, West Germany. Each will be located close to its respective parent company to draw on its expertise when necessary, and their first task will be in development work for the microcomputer systems, systems components and software products it plans to introduce. Although there will be considerable collaboration between the two facilities, each will undertake development work that is geared to its own marketplace.

As both Siemens and AMD hold Intel second source agreements, the early products of the new company will undoubtedly be based on 6080 processor devices, but as both parents are also integrated circuit manufacturers there are plans for greater collaboration in the future, including joint IC developments.

The joint venture follows Siemens taking a 17 per cent share stake in AMD for $22.5 million. The share price, $45 each, was established by monitoring the market price for AMD over a period of 90 days before closing the deal. This left Siemens paying an actual 65 per cent premium for the shares, as they fell after the deal was closed.

To be headed by AMD president, Gerry Sonders, the joint company has an equity of $5 million, and is 60 per cent owned by Siemens. In addition, the Germans have put in a further capital of $5 million.

Portable machine

A PORTABLE 16-bit microcomputer configured around the new half-card Digital Equipment LSI-11/2 should be available early next year from Gamma Telecommunications of Wokingham which represents the US firm, General Robotics of Hartford, Wisconsin.

The portable machine will be able to run DEC's PDP-11 systems software. A range of microcomputers based on the LSI-11 will be introduced early next year by Heathkit of Gloucester (CW, July 21).

Instruction manual

THE fifth in a series of instruction manuals on the RCA CDP 1802 microprocessor which covers the use of the Cosmac Software Development Package has been published.

The package is an interactive aid for developing and checking programs for the microprocessor, with facilities that include a cross-assembler, an error checking simulator and a range of debugging tools.

Designated MPM-202, the manual reviews the architecture, organisation, and operation of the processor and describes the two levels of assembly language. It also provides detailed coverage of the CSDP constituents.

The 88-page manual is available from RCA's sales office in Sunbury-on-Thames.

Intel to cut prices with new devices

INTEL is launching a dual attack on the microcomputer market, with the announcement that the 6066, 16-bit device will commence customer sampling during the first quarter of next year, and the news that savage price cuts, coupled with new introductions, are being made in the single chip, 8-bit market.

The 8066 is software and peripheral compatible with both the 8080 and 6085, 6-bit processor families, although to obtain the best results from the part, code translation will be required. This will give a throughput increase of between 10 and 15 times the 8080, which the company claims will give it a similar processing capability to the PDP-11/45. Without code translation, throughput will be increased only around 5 times.

The part will also have an increased, but unspecified, instruction set, which will include some compiler statements to which the CPU will respond directly. To accommodate these, a new version of Intel's PL/M high level language is being prepared, to be known as PL/M 86. It will not employ memory to memory architecture, using registers instead.

Peripheral compatibility is attained by designing the part around the 8085 I/O bus, though the key to this may well be the use of the new 8069 I/O processor device, which is not scheduled to appear until the third quarter of 1978. This will link 8060 peripherals and the MCS-66, the microcomputer system to be based on the 6086 processor. The address capability will be a maximum of 1 Mbyte, and 50 nanosecond memory devices can be worked directly.

Software and hardware development will be possible on the existing MDS-600 development system, and a range of SBC-68 single board computer assemblies will be available. These are virtually the same as the SBC-80 boards, and are basically just awaiting the arrival of the processor.

In common with the 8060 and 6065 processors, the 6066 will be able to use Intel's Multibus bus structure which, with 5MHz operation, will allow the construction of a multiprocessing system incorporating up to 16 master processor boards, in any combination of the 8080, 6065 and 6088.

As a derivation of the 8066, Intel will also be introducing the 8088 part during the third quarter, which will have a similar 16-bit internal configuration to the 8086, while having an 8-bit external data bus.

In the single chip microcomputer market, where the majority of use is found in high volume industrial and consumer control applications, the company is launching a two-fold attack, combining savage price cuts on some products with the introduction of new devices.

From the small to medium scale user, categorised as an annual consumption of up to 10,000 units, there is a growing trend to use the 6748, EPROM version of the 6048 microcomputer in a production role. Designed as a development tool using EPROM memory rather than masked ROM, the device has found increased use with companies having several small volume applications for the one device, where its increased cost can be traded off against mask generation costs for the ROM on an 8046. In consequence, Intel has cut the 100 up quantity price from £200 down to between £2[illegible] and £33, depending on variant.

The pricing on Intel's EPROMS has also been chopped, with the 2716, 2K by 8 bit now down to £27.40, the 2708, 1K by 6 bit to £12.90 and the 2758, all 5 volt 1K by 6 bit to £13.70 — all in quantities of 100-up.

The new introductions are aimed at taking the company a step nearer its goal of achieving a single chip "system" rather than single chip computer for control applications. The first is the 8021 processor, for which sampling has just started. This is basically a stripped down 804[illegible] device, housed in a 28-pin, rather than a 40-pin, package.

The main difference is that the 8046's capability for expansion to off-chip data memory has been removed, leaving it with the on-board 1K byte ROM and 64 byte RAM only. Input/output lines have also been trimmed down to 21 lines. Intended specifically for consumer control applications, it features one pin as a zero crossing detector together with two high voltage drivers. In quantities of 10,000 the device will be priced at £1[illegible]

Spreading in the other direction from the 8021, the second introduction is an upgrade of the 8048 device. Known as the 804[illegible] this features 2K bytes of ROM, 126 bytes of RAM, and has a 10MHz clock frequency. This gives the device an instruction cycle time of around 1.5 microseconds, and a two-times speed improvement is planned.

More 4014 options

THREE enhancement options are to be introduced next year by Tektronix for its 4014 video terminal. Each will be based on a Motorola 6800 microprocessor, and up to 32K bytes of RAM.

The minimum enhancement, known as Option 40, equips the terminal with a programmable keyboard, display scrolling and new communications parameters for use with a host computer that takes account of the limited intelligence being included.

The second stage, known as Option 41, adds to Option 40, facilities for graphics location, scaling and rotation, plus symbol generation. Both options are expected to be available by the end of January, and will be followed at a later date by the third enhancement, Option 42, which will add graphics refresh, with dragging facilities.

The Option 41 enhancement should find a ready market in several sectors of engineering design activity, for the programmable keyboard and symbol generation facilities can be combined to provide complex symbols assigned to a particular key. This is particularly useful where repeated use of that symbol is required, as in applications such as electronic circuit design.

With 32K bytes of memory installed, up to 10K vectors can be accommodated for graphics or symbol generation purposes.

Range of I/O boards

DATA acquisition and analogue output boards that are compatible with a wide range of microcomputers have been introduced by Analog Devices. Each board in the range has been designed to emulate the functional, mechanical and electrical parameters of counterparts produced by Texas Instruments, Pro-Log, Intel, Motorola and National Semiconductor.

The boards offer a variety of functions, ranging from multiple input data acquisition and multiple analogue outputs, to providing a combination of these.

A total of nine boards have so far been introduced by Analog Devices, and further additions are planned. For the Pro-Log 4 and 8 bit microcomputers, the current range includes a 16 channel data acquisition board and a 4-channel analogue output board, for the Intel SBC80, MDS and the National BLC 60 microcomputer families there is a 2 or 4 channel, 12-bit analogue output board and a 16 channel, 12 bit data acquisition board.

Three boards are available for use with the Motorola 6800 series, these being a 16-channel high speed analogue input board, a 4-channel analogue output board and a complete 16-channel I/O subsystem. Finally, for the Texas Instruments TMS900/100M microcomputer there is a data acquisition board and an analogue output board.

First edition

pocket sized

Something unforgetable has happened to DEC's LSI-11 and *PDP 11/03 computers.

It's the new Intel In-1611 Add In Memory system.

Featuring a standard 2 wide printed circuit card up to eight times more dense than DEC's own memory system, the In-1611 represents a real advance in design and economy.

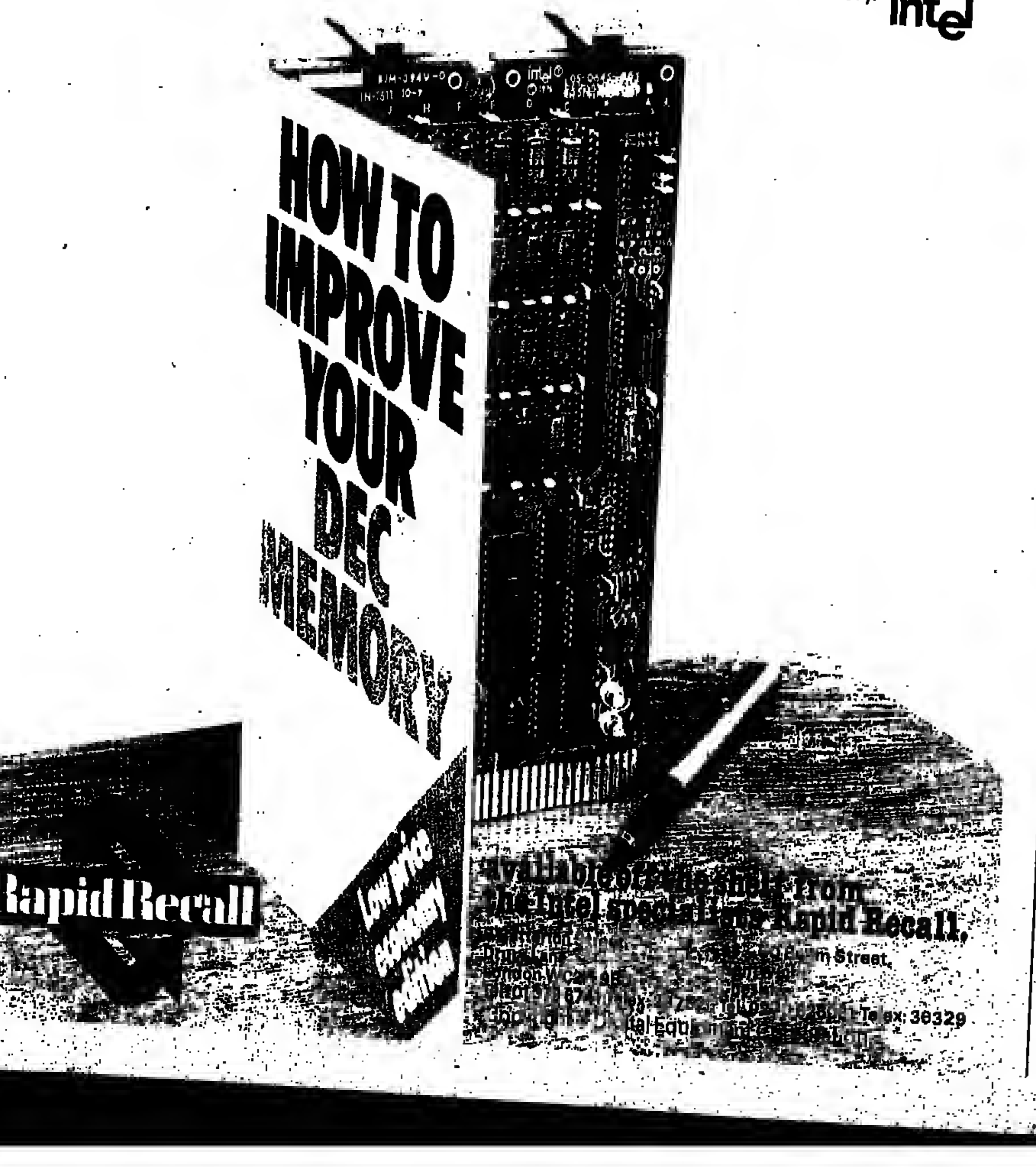
Available ex-stock from Rapid Recall, the In-1611 is available in 8, 16, 24 and 32K models – all with access times of less than 450 nanoseconds. And all units are directly compatible with the DEC systems.

For immediate off the shelf delivery of any In-1611 unit – or for more information get in touch with Rapid Recall (tel: 01 379 6741).

Also available – In-4711 series.

This plug-in memory module provides 16K words plus parity on a single card and occupies only a single *PDP-11 card slot. The In-4711 can be used with the *PDP-11/04, 11/05, 11/10, 11/34, 11/35, 11/40, 11/45 and 11/50.

The new Intel In-1611 Add In Memory. intel



ONLINE SYSTEMS

Terminals will be as familiar as telephones

"Batch is a bitch" was the startling advertisement slogan recently used by Data General. And never was a truer phrase coined by an advertising copywriter.

Batch processing was the curse of the early computer implementations and the cause of much of the bad reputation which caused the computer slump of the early seventies.

It is self-evident now that online systems are the answer to so many user needs, although there are still some bulk processing applications where batch has its role.

This supplement looks at some online applications and the terminals available. In this opening article, H. Holman Hunt, managing director of Pactel, puts the online revolution into a wider social context, looking to the future and the way in which online terminals could affect the home and work environments.

He foresees a future in which computer networks will crisscross the country in the same way that the national grid does now, and the computer terminal will become as familiar to the general public as that well-known online terminal, the telephone.

By H. Holman Hunt

THE forecast figure on terminal population, produced last year by Pactel for the Eurodata Study, shows that by 1985 some two million terminals will be installed in Europe. In the UK, the figure on a conservative estimate, is expected to be 400,000. Of course, part of this huge growth in terminal population can be aligned to the growth of the computer industry as a whole but the terminal figures are proportionately so much higher than those for mainframes and other equipment that the reasons bear some examination.

In order to do this, it is interesting to return to the Eurodata Study and examine the way in which these forecasts break down for major industries, looking not at increases in existing applications but at the new applications which are looming on the horizon.

It has widely been predicted that, during the 80s, a deep and fundamental change will take place in industrially developed society. This stance is argued most cogently by Harvard sociologist, Daniel Bell, in his book "The Coming of Post-Industrial Society", where he claims that our basic resource of the 80s will be knowledge and not raw materials; information and not energy. Thus, we stand on the threshold of a major transition in basic social structure which will have a far reaching effect upon the computer and telecommunications industry on which, inevitably, will fall the responsibility of managing this vital resource.

The predicted growth of the information industry will, of necessity, lend to the growth of online systems, as both the number of databanks and the users needing to access information from them, grows. This growth in the number of online information systems will be parallelled by a growth in the size of such networks, as efforts are made to spread the high cost of their development over a large number of users.

Euronet, the scientific and technical information service developed by the Commission of the European Communities, provides a symbolic focal point for this type of network and it is likely that, as Euronet goes live next year, it will increase awareness of information at all levels throughout Europe.

At the other end of the scale, information networks on specific commercial subjects are springing up throughout individual countries. Here in the UK we already have systems for stockbrokers to access information on the market, for insurance brokers to find out the most favourable premium rate from the large insurance companies and, as anyone who listens to commercial radio knows, a widely advertised system for buying a car covering a number of agents. The last quarter of this century will see a growth in these services.

At the same time, within the conventional office environment, the number of private networks is rapidly increasing as

H. Holman Hunt, managing director of Pactel, has been with PA since 1952, and in 1958 he set up a computer consultancy service within PA which has grown under his leadership to become a group of experienced professionals organised in three categories: Computer Consulting Division, Software Division and Operational Research Division. These divisions now constitute Pactel UK.

Holman Hunt is a Fellow of the Institute of Administrative Management, the British Computer Society and is a fellow and Past President of the Institute of Management Consultants.

management becomes more aware of the importance of timely and accurate information. The paperless office is no longer the pipedream of the equipment salesman and, even for small companies, word processing, accounting and management reporting systems are going online and achieving tangible benefits.

In the industrial sector this trend is being further compounded by the swing to distributed processing and the use of mini and microcomputer systems, online to each other or to a large head office mainframe. The Eurodata figures for process manufacturing and discrete manufacturing combined show an increase in the number of terminals from 90,000 for 1976 to 433,000 in 1985.

The biggest increase in forecast number of terminals lies within the retail and wholesale sector, from about 40,000 in 1976 to 352,000 in 1985. In the US, where a nationally accepted product code has been in existence for a number of years, several large supermarket chains have established point-of-sale systems using scanners and terminals at the end of each check-out line. These, in turn, are linked to a computer either in individual stores or at group headquarters.

The scanner reads the price and other details from the bar-code on the package while the intelligent terminal computes the bill, gives the customer change and, by sending the details of the purchase down the line to the computer, amends stock records and deals with the accounting function.

Now that the EEC has decided upon the form of the European version of the product code and the manufacturers have adapted equipment to cope with the changes made necessary by differing currencies, it cannot be long before such systems will start appearing throughout the UK.

It is also likely that future trends in online systems will provide a link between the retail and banking sectors before long. A recent study of Electronic Funds Transfer Systems predicts a massive growth in three major types of banking automation terminals; online teller terminals, automated teller machines and point-of-sale devices.

While the first of these, DLTTs, are located at a teller window in a bank and provide real time access to a customer file; and the second, ATMs, perform the same function but do so automatically and can, therefore, be located outside a conventional bank; the PoS terminals are located directly in a store or supermarket. These devices perform check verification, credit or instantaneous funds transfer without currency or cheques actually changing hands and the transactions are accomplished when the customer presents a magnetically coded plastic card.

The concept of a computer terminal in every home is less futuristic than might be supposed since the teletext-adapted television set is really nothing less than a receive-only terminal. The large manufacturers plan to launch these sets at the Audio Fair next year and prototypes are already being demonstrated in several shops.

Once the Viewdata network has been established and the vast majority of houses are equipped with teletext TV sets, there is no reason, apart from Post Office policy, why they could not interface with each other, allowing communication between subscribers and providing a system for electronic mail to be implemented.

Thus, unless there is a major and unforeseen change in the way industry is moving, networks will crisscross the country in the same way that the national grid does now, and the computer terminal will become as familiar to the general public as the telephone.

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Our standard terminal which gives you full editing facilities, paging, synch/asynch transmission and programmable function keys within the long list of standard features.

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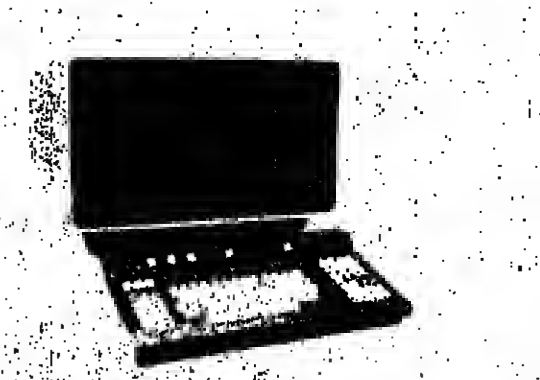


Whatever your field of activity or your application, the Megadata "System 700" is adaptable to your needs, and ensures full compatibility with already existing equipment, thus considerably improving the systems overall efficiency.

eurotech

More users turn to online working

RICHARD MILTON says that this month's Compec left visitors to Wembley in no doubt that the terminal is by far the most important peripheral product, and that more and more users are turning to online working for data entry, program development and transaction processing. Here he describes some of the benefits which await the DP manager with strong enough nerves to handle the development of online, terminal-handling software and outlines recent hardware innovations.

THE punched card is dead — long live the online terminal! It isn't quite as dramatic as that, but visitors to this year's Compec, for example, were left in no doubt that the terminal is by far the most important peripheral product and that more and more users are turning to online working for data entry, program development and transaction processing.

For the DP manager with strong enough nerves to handle the development of online, terminal-handling software, the benefits are many. Program statements can be entered more quickly through a screen, and verification is practically automatic. Many users find that programs input in this way, for example, are 100% accurate — a level of accuracy rarely achieved with either card or magnetic tape input.

Programs can also be altered much more easily on a screen, and this is a facility which is particularly useful where a number of similar programs have to be produced, varying in some details. It is even possible to write small programs while sitting at the screen.

The reference to the demise of the punched card is, of course, premature to say the least. And if anything, the online terminal has given this method of data entry a new lease of life as far as jobs like file creation are concerned.

Just what kind of terminal the user will go for depends, of course, on the speed and throughput of his application and on how time critical it is. In the past, remote job entry was a popular way of getting more "mileage" out of an existing mainframe. But the increased price-performance of minis have made them the first choice of many users for dedicated applications and the RJE terminal is losing favour in some quarters. Remote job entry tends now to be offered as merely one facility among others on the new breed of intelligent terminal.

The microprocessor has meant that greater intelligence in new terminal products is almost de rigeur and the current generation of products pack the power of a respectable mini. Aside from purely technical developments, though, there are a number of market forces pushing display terminals into prominence.

The minicomputer manufacturers have identified the VDU as their biggest selling asset. Ease of program development and data entry, and the immediate impact on the prospective customer of transactions conducted on the screen have contributed, in no small measure, to the mini's appeal and its success in traditional mainframe markets. This has resulted in the mainframe makers themselves (notably IBM, ICL, Univac and NCR) pushing the benefits of online terminal-oriented systems.

Not only the mainframe manufacturers have responded to the challenge of the mini firms. Baric, for instance, recently introduced its Datacare service, in which the user buys an ICL 1500 online terminal as part of a package of bureau services.

Many new ranges of terminals have appeared in recent weeks. ITT business systems, which has been active in the market for some time with an IBM-compatible system, the 3280, has now launched a new video terminal, the 3230, and an intelligent terminal system, the 3630. Hazeltine, following a general trend to cheaper terminals, has launched its H 1500 low price family of VDUs with a one-off price of £800.

Colour has yet to catch on in a big way as far as the professional user market is concerned, but Reading-based Crow has launched several models capable of displaying in high resolution and full colour. The company also produces screens with built in teletext facilities to receive Ceefax and Oracle.

Also active in the colour field is a newly formed division of Gresham Lion which has produced two colour information display systems aimed at applications such as satellite, radar and X-ray scanner pictures.

Also at the low-cost end of the range is the 1200 VDU page printer introduced by Perkin Elmer. Aimed at transaction processing applications, the 1200 includes editing facilities and simplified host computer programming and sells in quantity for £1,100.

Graphics remain a minority interest, but the market is at least active enough for one of the major manufacturers in this field — Tektronix — to have launched two new graphics displays. The GMA 101A and 102A are designed to allow users to do some tailoring to their own needs, but are aimed basically at applications like printed circuit layout, document preparation using different founts, and high resolution scientific work.

One "all-singing, all-dancing" terminal of interest is the new Diablo 1641 which can act as a communications terminal compatible with IBM's 2741, or can be used in an APL application, and which also has a sufficiently sophisticated graphics capability to enable it to print out music.

Probably the most interesting technical development, and one which may well catch on in a big way in future, is the hand-held or portable terminal. These are not too thick on the ground at present, but promise exciting things. Data Recognition has developed a portable data capture device called Dataport 5 which can be used both to store and to retrieve data and to communicate with a host mainframe.

Data Recognition's portable terminal, Dataport 5, in use for inventory control. Micros mean that the terminal is growing smaller.

Built around a 16-bit micro processor, the device can s... up to 20K characters in ... semiconductor memory ... removable cassette. It has ... search facility to retrieve ... display data on a 16-character alphanumeric display and ... also transmit data to a main frame via telephone lines ... up to 2400 baud.

The manufacturer says ... the device is aimed at app... cations such as stock con..., where warehouse staff can ... for inventory control and ... ducing picking lists, and ... by people such as sales re... presentatives who could tr... mit orders from the custo... premises using an acou... coupler.

The portable terminal is ... esting because it immed... brings to mind the recent ... of the electronic calculator ... ket — a lesson which will ... uppermost in the minds of ... electronics manufacturers ... only has the micropro... provided the technical me... construct cheap, pocket ... terminals, but major ... forces are at work pushing ... manufacturers to use this ... nology.

By next year, numer... teletext services will be avail... to the public — services su... Viewdata, Ceefax and Ora... Initially, these services are c... cerned only with the giving ... information and news, but ... ready numerous commer... companies are planning to ... teletext to sell houses, ca... boats, and many other items.

When the domestic ... receiver, in conjunction with ... telephone, becomes establ... as a "transaction centre" in the ... home, the day of the domes... video terminal will have arriv...

Another driving force is the ... of personal computing. Alrea... some four personal compu... systems are on offer to en... thusiasts, the cheapest of which is no more than £600. Some of these systems convert the domestic TV receiver into a data terminal by means of a plug-in microprocessor, in much the same way that at present ... can be converted into a game machine.

Many sceptics believe that the average domestic consumer simply does not have the dis... posable income to engage in personal computing, yet the cheques are rolling into the ... firms that have ventured into the field. And much the same doubts were expressed about calculators and digital watches — with results that can be seen in every high street.

It is likely that within the next two or three years, the semicon... ductor manufacturers will have produced a solid state screen based on charge-coupled devi... technology, to replace the fun... damentally outmoded cathode ray tube. Once that step has been accomplished ... the electronic apparatus of a ter... minal could, in principle ... onto a single ... which in volu... could be priced ...

All you need at push of a button...

By Richard Creer

Richard Creer, who has eight years' data processing experience, six of these on teleprocessing systems both in this country and the US — discusses here what can be done to maximise the chances of your first online implementation being a success.

Creer specialises in database systems on IBM hardware, and has spent the last two years providing advice and practical assistance to TP users as an independent consultant. Recently he formed Circle Computer Consultants Ltd with four other previously independent TP consultants.

SO it has been decided at last, for reasons practical, political or emotional, that your installation is going to have an online system. After years of happily punching cards and printing paper at the central computer department, it is at last cost-effective for the people in sales and marketing, personnel, the loading bay and the boardroom, to get the information they need at the push of a button.

No more forms to fill in, errors to correct, hundreds of pages of sub-totals to wade through just to find the figure they want. Simply type in the right code on the friendly little TV screen and bingo! The answer appears as if by magic. Isn't technology wonderful?

But, of course, it isn't magic at all. The information that someone wants is stored away on a record in a disc file in a remote corner of the computer room. Between that record and the shop floor a long and tenuous chain of hardware and software must be planned, installed and tested. What's more, each link in this chain must be highly reliable.

Failure in the overnight run of a batch system can, with luck, be recovered from in-time to prevent it from having an adverse effect on company operations. Failure in an online system is immediately apparent — when you press the enter key and nothing happens. The result is one frustrated and unhappy clerk and a DP manager looking for an explanation.

As a first time user, you will have no practical experience of building this chain, but you will presumably have acquired a good deal of theoretical knowledge from various courses and seminars attended. Your confidence will also, no doubt, be bolstered by the fact that many have taken this path before and succeeded, although you may still have a few lingering misgivings about the whole scheme, caused by stories of other people's expensive and embarrassing failures.

What can be done to maximise the chances of your first online implementation being a success? One of the most important factors is the selection of the initial application. Ideally, it should be one that requires a minimum of system design and programming effort, no complex restart or recovery facilities and one where system reliability, though desirable, is not of paramount importance. It would also be of considerable advantage if the delivery date for the system were not critical.

What kind of application fulfills these requirements? None better than a straight forward inquiry on an existing master file. Such an application embodies most of the fundamental features of all online systems — direct file access, operator communications, rapid response — but without the multitude of complications that can arise from real time file updating. Also, since the user department, presumably, already has some means of interrogating the master file via batch systems, there should be less pressure on the online development team to "come up with the goods" and there will be something to fall back on should troubles strike during the "running-in" period.

The choice of terminals is usually dictated by the application, the amount of money available or some combination of the two. Most people are impressed by the speed, clarity and ease of use of the expensive visual display unit, but for many applications they are either unnecessary or inappropriate and there is still plenty of scope for a good typewriter. Whatever variety you select there is bound to be a wide choice of models from a number of manufacturers and a corresponding wide range of prices.

Perhaps the safest bet for the first time user is to choose the one advocated by his mainframe supplier, even if it is the most expensive, thereby procuring plenty of "free" assistance while installing the online system. You can always consider a cheaper and/or more reliable model later and this should serve to keep the giant on his toes.

When it comes to selecting that other essential piece of teleprocessing hardware — the telephone line — the choice for most of us is considerably more restricted. All I can advise is order early.

Having sketched out your hardware plans, it is time to turn your attention to software needed to support it. Here again products are proliferating and there are several good teleprocessing monitors on the market, all proclaiming their relative merits in the areas of price, performance, reliability and so on. You can perhaps narrow down the field by discarding those which do not support your particular choice of hardware.

If you already have a database, you will probably want to have online access to it, if not immediately then at some later stage of development. "Bridges" have been built in various directions between some of the database packages and some of the teleprocessing monitors, so the availability of such a link is an additional selection criterion.

A word of warning though — make sure that the bridge is actually installed and working somewhere, rather than just "planned", or you may find yourself helping with its construction.

Other less tangible factors that should be taken into account include the availability and quality of training for your current programmers and analysts and the size of the pool of experienced people from which you may want to recruit new staff. The latter is roughly proportional to the number of existing users, and there are some pretty convincing arguments for selecting one of the more popular online packages.

If you don't already have a database but plan to install one, then the arguments presented above would, of course, still apply but in reverse — choose a product that has been proved to work well with your TP monitor. Whatever the attractions of these two items of software are when considered individually, they will be found to be far outweighed by the advantages of having them work well together.

Staffing your first online application may present some difficulties. Unless you have been particularly fortunate in your recent recruitment programme, you are unlikely to have much in the way of inhouse skill. Training existing staff in the new techniques required and drafting in outside expertise, either permanently or temporarily, should produce a balanced team. By working with people who have "done it before", those with no previous experience will certainly learn more rapidly than through any amount of trial and error.

Having assembled, or at least planned the assembly of, all the necessary hardware, software and personnel components, you are now in a position to embark on the system design and programming. For reasons which are often difficult to identify, these processes tend to take far longer than would be expected. Parallels with batch systems of superficially similar complexity seldom seem to hold true and progress, particularly in the early stages, is frequently exasperatingly slow as various system design blind alleys are explored.

Certainly the dictum that "when you start writing online programs, 80% of your batch programming experience becomes redundant" seems to be correct. While that missing 80% is being learnt, much time and money can be expended on unsound system design and programming strategies. This is one area where expert advice can help you avoid most of the pitfalls.

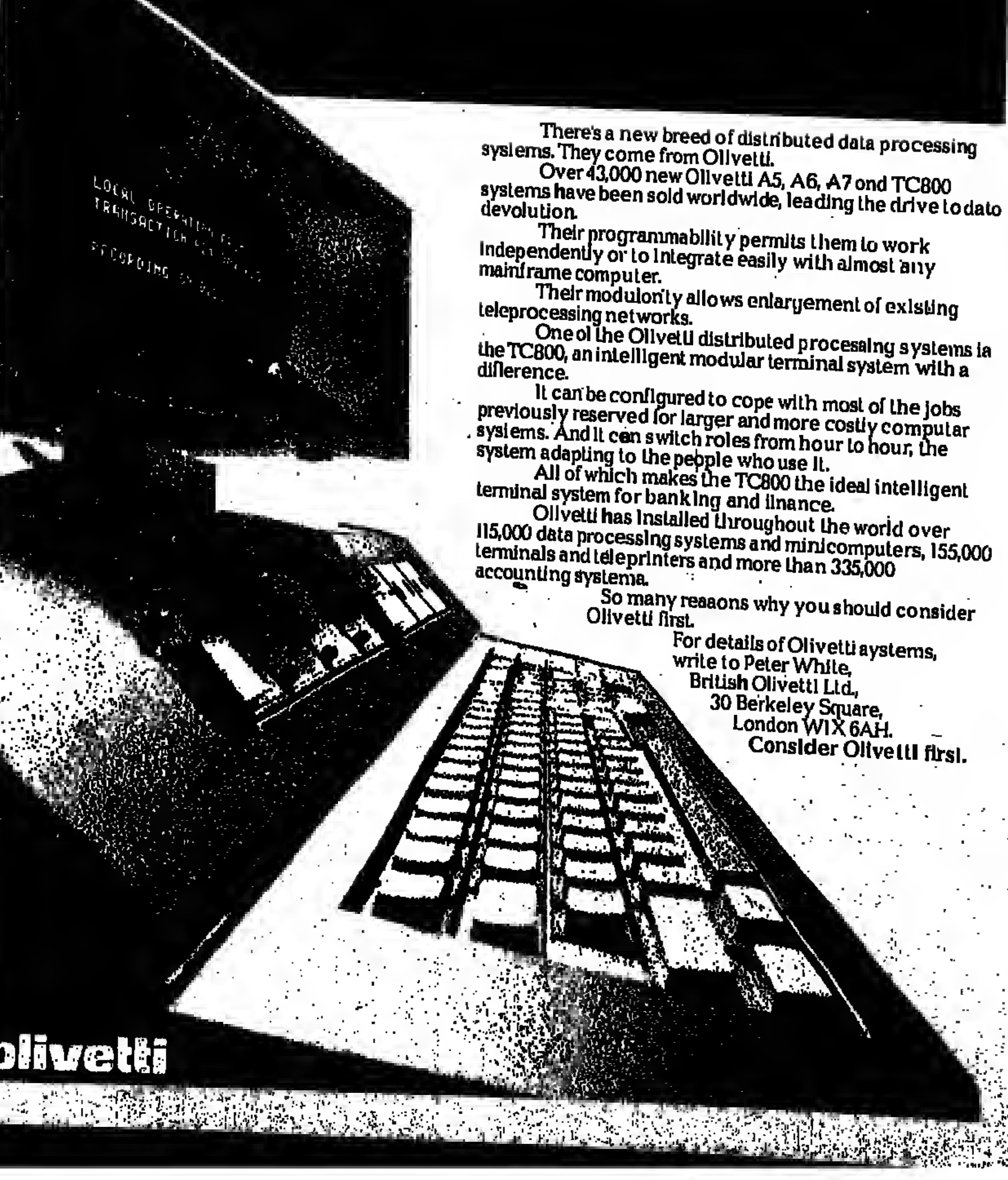
One aspect which is often given too little emphasis when designing systems, both batch and online, is the specification of performance criteria. In a batch environment, poor system design can, and often does, significantly increase the processing time. This may or may not be important depending on factors such as how often the application is run, and how much spare computing capacity you have.

The user need never know that a job which started at midnight ended at four in the morning instead of two. But in an online environment doubling the processing time is immediately apparent as an unacceptably long response time at the terminal. Fifteen seconds may not seem long if you are working at a desk, but it can feel like eternity when you are sitting in front of a terminal.

So, it is a good idea to establish an upper limit for system response, to bear this

● Turn to page 18

Olivetti Systems.
Intelligent enough to work on their own.
Adaptable enough to join any network.



There's a new breed of distributed data processing systems. They come from Olivetti.

Over 43,000 new Olivetti A5, A6, A7 and TC800 systems have been sold worldwide, leading the drive to data devolution.

Their programmability permits them to work independently or to integrate easily with almost any mainframe computer.

Their modularity allows enlargement of existing teleprocessing networks.

One of the Olivetti distributed processing systems is the TC800, an intelligent modular terminal system with a difference.

It can be configured to cope with most of the jobs previously reserved for larger and more costly computer systems. And it can switch roles from hour to hour, the system adapting to the people who use it.

All of which makes the TC800 the ideal intelligent terminal system for banking and finance.

Olivetti has installed throughout the world over 115,000 data processing systems and minicomputers, 155,000 terminals and teleprinters and more than 335,000 accounting systems.

So many reasons why you should consider Olivetti first.

For details of Olivetti systems,
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Reality understands English. So the obvious place to find the right words for Reality is an English dictionary. Choose the most useful words:- check, sort, list, control, inventory, value, together with those particularly associated with your type of business. It's as simple as that.

Reality is a computer-based data management system which stores centrally all data required for an operation (business, factory, warehouse, accounts department) and allows anyone interested — not just data processing professionals — to access and update files whenever necessary using an easy to operate TV-type screen or printer.

What's more Reality can be used wherever the work is being done. And as many enquiries can be made simultaneously as there are terminals on the system — providing the security password is tapped in first.

If you can speak English then Reality will answer back

However, Reality understands more than just English. For the EDP specialist it copes with high level application-oriented languages such as DATA/BASIC or RPG11.

And there is the useful PROC — a job control language which enables a whole series of operations to be originated with a single command.

Sales Order Entry, Stock Control, Accounting, Production Scheduling, Inventory, Sales Records, Payroll, Credit Control...... Reality can look after all these business manoeuvres and many, many more.

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Hertfordshire HP2 7LA
Telephone 0442 61266. Telex 825648

REALITY from CMC

The solution to an advertising problem

By Laura Tatham

Laura Tatham takes a look at a bureau service that is claimed to be unique of its kind in the UK — dedicated to the work of advertising and market research agencies. She says that while it is easy for the computer-minded to see, it is only now becoming apparent to UK advertising agencies that online operation is the perfect answer in this environment.

ALMOST all the activities of an advertising agency that are not directly creative generate a mass of paperwork that is complex, volatile and highly time-dependent. It therefore seems strange that although many agencies use batch computing, only a handful have yet exploited the possibility of online computing.

Occasionally this omission may be due to ignorance. More often it is the inability to afford an in-house system of any kind. Fewer agencies still could find the resources to develop, operate and maintain an online system which, to be fully cost-effective, would probably be too elaborate for a minicomputer to handle.

Several agencies in London, however, have found that a comprehensive online service known as Medline provided by Donovan Data Systems provides a highly satisfactory solution to this problem.

Donovan is an independent bureau company with clients in North and South America, two European countries and the UK. The bureau service is unique of its kind in the UK and is dedicated to the work of advertising agencies and, to a lesser degree, market research agencies.

Situated in Mayfair, London, Donovan's computer centre is equipped with an IBM 370/135 with 500K bytes of main store and front-ended by an IBM 3704. At present a total of 22 video terminals, split roughly equally between IBM 3270s and ITT 3280s, are linked to the system, all but two being in users' offices.

This total will reach 30 by the end of December, and by April 1978 it will be 42, says Roy Tinker, vice president and UK general manager, who is also planning to upgrade the mainframe to a 370/138 by the end of next year.

In casting in their lot with Donovan, London advertising agencies, such as J. Walter Thompson, French Gold Abbott Kenyon & Eckhardt, and BBDO, etc, are following the American example, where more and more agencies are closing down their in-house installations. Some 30 of them, including 15 of the top 20, are Donovan clients, using nearly 300 video terminals and a countrywide data communications network.

The non-creative activities of advertising agencies can be summarised under three broad headings. First is campaign planning. This involves selecting the media which, in the agency's judgment, will give the client's message the most effective impact, subject to budgetary limits and other constraints such as the need to co-ordinate with a new product launch.

How many media are relevant obviously depends to some extent on the nature of the product or service. Nevertheless, the list of possibilities may run into hundreds and the total available into thousands. The structure of charges for advertising is also far more complex than a layman might suppose.

Rates will differ, for instance, according to position in a publication or time-slot on the air, the size of space or amount of time required and whether a single ad or a series is booked. Though final decisions must, of course, depend upon skill and judgment and cost alternative schedules are obviously of considerable value.

Secondly, there is the recording of the selected bookings which is also the basis for client and other accounting. In the advertising business, cancellations and changes are frequent due to factors varying from second (or third or fourth) thoughts on clients' part to feedback after a campaign has begun. The problem is therefore similar in the nature to that faced in airline seat reservation.

Thirdly, because advertising is fiercely competitive, and clients expect it, the agency must be in a position to quantify the effectiveness of its work. For its own good health, it must also be able to assess the profitability of its clients.

It is easy for the computer-minded to see, — though it is only recently becoming apparent to British advertising agencies — that online operation is the perfect answer in this environment. It is equally clear after talking to Tinker why it is economically impossible for most agencies, if only on the grounds of cost, to build and operate their own systems.

Integration of the records used by the various departments of the agency is necessary, not only in the interests of accuracy and consistency, but to obviate repeated data entry. A large database must be designed, maintained and constantly updated. The program for media scheduling is large and sophisticated and the transaction processing software complex. Donovan's US parent, which initially develops software (though modifications are made locally to suit varying national practices and there is a two-way exchange of ideas) allocated some $600,000 in 1977 alone for program development and maintenance.

Another factor that militates against the individual user is the need for constant system availability. Over 25% of Donovan's software is oriented towards recovery. As a result, the worst that can possibly happen to a client is to lose a few hours' input. A further safeguard is a standby arrangement with a user of a similar configuration.

Users of the Donovan media and accounting service pay a percentage of the media billings processed through the system. Single video terminals, or clusters with a local controller, are linked to the centre by dedicated lines and are rented direct from the manufacturer rather than from Donovan Data Systems.

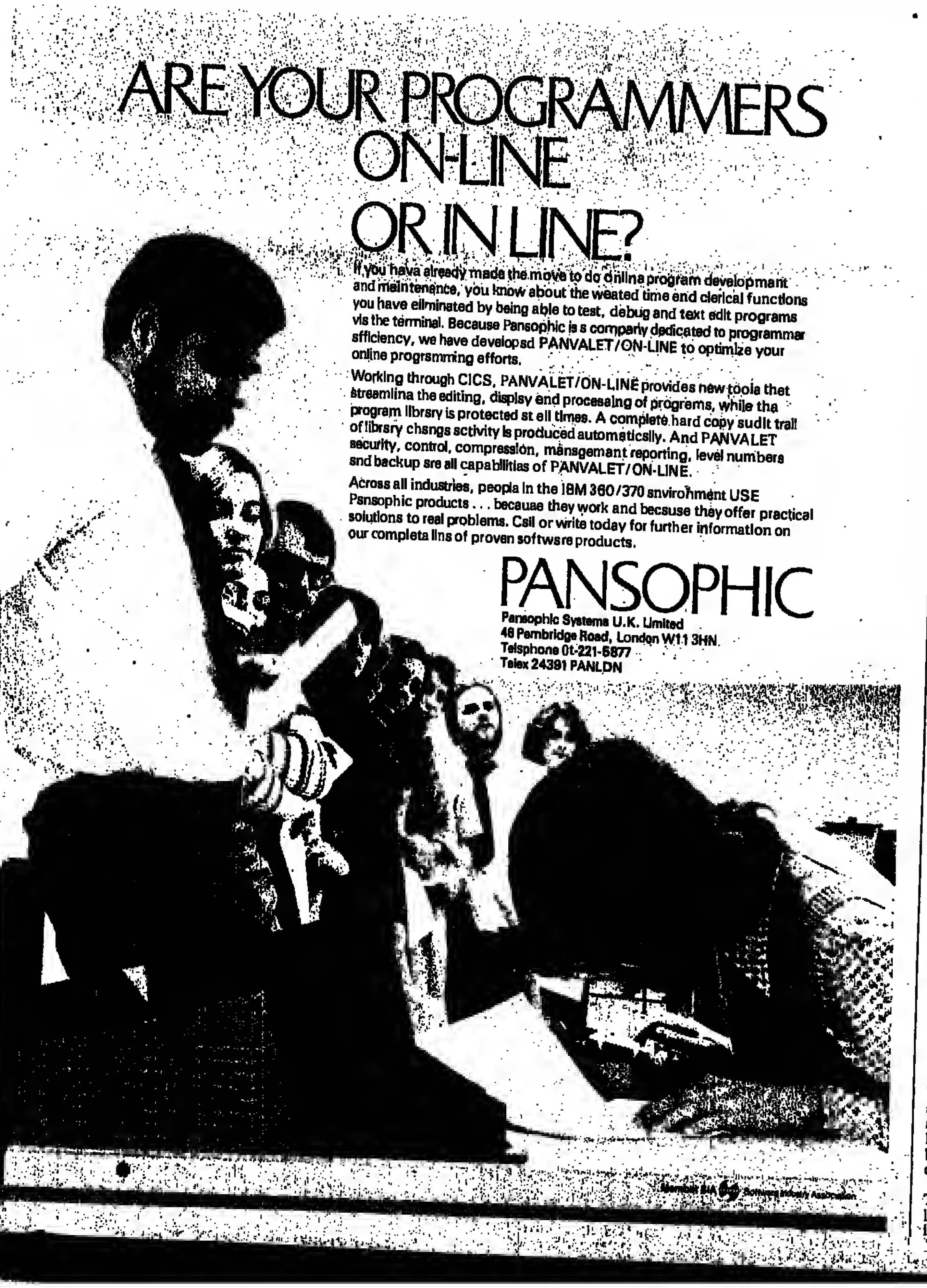
An increasing number of these are ITT 3280s. While a price about 30% lower than the IBM equivalent with which these are fully compatible, and quicker delivery are undoubtedly a powerful incentive to choose ITT equipment, these terminals also have exceptionally clear and flicker-free display. Their attractive appearance also, perhaps, carries particular weight with advertising agencies.

These terminals are used for online data entry, with real time updating of files where appropriate, and for inquiries. One of the benefits of the Medline service is greatly to reduce paperwork. An interesting spin-off from this is the discovery of creative talent in those previously overburdened with soul-destroying clerical tasks. Reports and other documents are therefore prepared on demand rather than automatically.

A request mode via a terminal for any one of 00 different reports will result in a printout being available for collection first thing the following morning. Subjects vary from listings of ledgers to budget breakdowns and daily traffic details showing all amendments to user files.

As befits the servant of a service industry, Donovan maintains close and constant liaison with its customers, in order to ensure they get best possible value from the system and to help solve any problems they encounter.

A useful device in this connection is the ability to call on to a computer centre video terminal (which is constantly attended) an identical display to that currently shown on a user's screen. This facility, in conjunction with a telephone conversion, helps users sort out problems that arise.



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At the push of a button...

● From page 17

upper limit in mind while designing the system and subsequently programming it and to ensure during acceptance testing that it has not been exceeded. If performance is not satisfactory, various tools are available for measuring the internal performance of some, if not all, of the TP monitors. Their use will enable you to find out "where all the time goes", and then hopefully tune your system in order to make it perform better. Depending on the amount of work involved, such an exercise can further delay implementation, and it is surely far better to get the system design right in the first place.

At last the great day comes. The equipment is installed; the last minute bugs have been ironed out. Those embarrassing demonstrations when everything goes wrong have been successfully explained away and Gladys in stock control can start hammering away at the keyboard.

And, what do you discover? Almost inevitably the system will not be used the way you envisaged. Nevertheless, online systems are generally popular with non-DP people, perhaps simply because they can tailor them to their own requirements. Maybe you can judge just how popular yours is by the time it takes before someone comments casually, "wouldn't it be handy if we could change that amount right at the terminal".

And when that happens, it's out with the feasibility study manual again, back to the drawing board. Now where can we find somebody who knows something about warm restarts...

NEWS IN BRIEF

Quiet power for 3032

ONE of the problems facing IBM users planning a switch to the new 3032 mainframe is the need to provide a power house outside the computer room for the motor-generator power supply. MPL of Hayes is offering an easy way out of the problem with its ML 5471 TQI frequency converter, which has been designed to be compact and quiet enough for installation within the computer room itself.

The unit provides output of 75KVo at 441 Hz and 208 volts, and is suitable for both the 3032 and 3033.

Chinese order

THE Peoples Republic of China is to spend $4.4 million with Electronic Associates of New Jersey, for a hybrid computer system to be used in a simulation/research laboratory. The order, which still awaits US Commerce Department approval, is for a Hyshare 700 system incorporating three Model 781 analogue consoles, a Systems Engineering Laboratories 32/55 computer, Hyshare software and related interfaces. An export licence is being applied for.

Takeover denial

TALKS have been taking place between minimaker Microdata of California and Olivetti of Italy — but not about possible acquisition, as was reported in the US Press. "They are talking to us about buying products, that is all." Microdata president Don Fuller told Computer Weekly.

£690,000 upgrade

COMPUTER facilities at Bedfordshire County Council are to be upgraded in a £690,000 move from a Honeywell 2050 to a Honeywell Level 66/10. The equipment will be installed in 1979.

Airline system

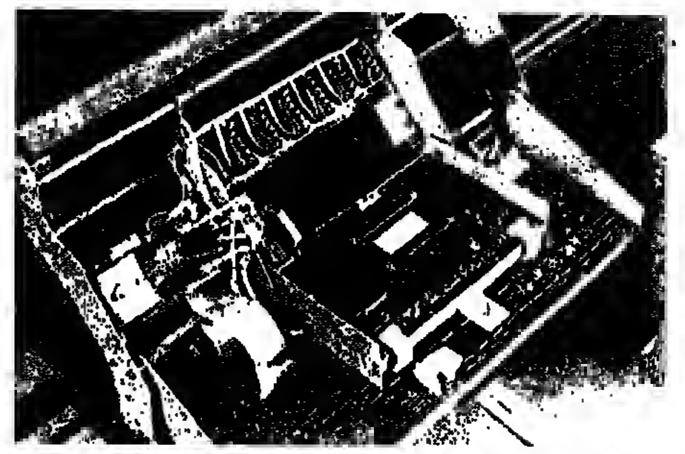
THE 1100/80 system ordered by the Scandinavian airline SAS has been formally announced as a three-processor 1100/83 system. The new machine will replace four Univac 494s (CW, July 7).

Not for outsiders

A PROPOSAL to allow outside organisations to use Hamilton District Council's Honeywell 61/60 machine has been rejected.

OPAS makes life easier for telephone operators

ONE of the unsung pioneers of the microcomputer revolution is the UK Post Office. In 1973, the corporation received the first Intel 8080 micro to be delivered in Europe, subsequently helped to debug the Intel PL/M compiler, and in the process developed a multi-processor telecommunications product with significant export potential. The next step in the development will be the incorporation of a bubble memory backing store.



A view within the control desk of STC's Operator Position Assistance System. The centre small panel contains the electroluminescent screen and associated drive circuitry while the larger board beneath it carries the integrated circuits for control of other functions associated with the main keyboard.

The product, developed by the Post Office, but engineered for production, manufactured, and marketed worldwide by STC, is OPAS, Operator Position Assistance System.

OPAS is designed to cut out much of the tedious work the telephone operator at present has to do in connection with assisted calls such as credit card, long-distance coin-box, some overseas, and reverse charge calls. As an example, the number of operator tasks in a simple long-distance call-box connection is reduced from 33 to 17.

Conceived from the start as an exportable product and designed to be built into existing operator consoles, OPAS has won its first export order, worth £400,000, in Sweden. The telephone exchange at Orebro, serving most of southern Sweden, is to be fitted with a 30-position OPAS system which will facilitate the work of the operators who have to handle Southern Sweden's large population of radio telephone users.

The OPAS system automates the call set-up procedure once the operator has recorded the calling and called numbers; it records all the information needed for billing, a task at present done manually on cards; it automatically checks that the correct money has been deposited in coin-boxes; and it times calls for billing purposes, for instance when the calling party asks how much a call has cost. Its modular design allows a wide variety of other features to be added to meet particular customer requirements.

The compact solid state display on the system is also a British development. It comes from Phosphor Products of Poole, Dorset (CW, October 7, 1976), and uses DC electroluminescence of zinc sulphide particles. The result is a yellow-on-brown display, a combination which was chosen by Datasaab for its D16/30 VDU following a major investment to establish the most comfortable colour combination for long periods of viewing.

Each operator control unit contains one 8080 and supports up to eight operators. A further 8080 is used to control each application of the system, such as credit card information handling, maintenance and diagnostics. A 32-position system includes 14 8080s.

"We started programming in a macro language, but switched to PL/M when it became available, partly because we had an eye on the export market and partly because PL/M is widely used in Europe," Dr Peter Troughton told Computer Weekly.

Dr Troughton is responsible for technical development of the equipment associated with operator services, and conceived OPAS, which within the Post Office is called ACRE, Automatic Call Recording Equipment.

"Our next step will be to add a bubble memory backing store to the system for storing local telephone numbers. We are very pleased that a system developed from the outset with the world market in view should have resulted in such a promising product."

STC will be building the systems to be installed by the Post Office, and the first will go in next year.

STC had to make several adaptations to meet the specific requirements of the Swedish PTT, and looks for business totalling £1.5 million from Sweden.

PTTs in Europe, the Middle East and the Far East are now studying OPAS, and a version for the US market is under consideration.

—Tim Palmer

Noise Abatement
United Kingdom
November, 1977

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Water billing project ends

PARLIAMENTARY REPORT

A £200,000 three-year project aimed at developing a computer system for billing water service charges has come to an end at Warrington, Cheshire, headquarters of the North West Water Authority. The project was carried out by the authority in collaboration with nine other water authorities.

Answering a question from Kenneth Warren (Con; Hastings), the Secretary of State for the Environment Denis Howell (Lab, Small Heath) said it had been decided that the project had reached the point where further development of the systems would best be done by the individual authorities to meet their own requirements.

Warren asked whether the Department of the Environment could give technical resources to the authorities to enable them to develop a uniform billing service.

Howell replied that he was satisfied that the resources available to the authorities were sufficient.

● Installation of solid-state System X stored program telephone exchanges will begin in 1981, Lord Winterbottom told the House of Lords last week. He was replying for the government in a debate on the Post Office.

Fairchild F464 memory

FAIRCHILD F464 dynamic serial memory, thought to be the first 64K bit charge coupled device to come into the market, is constructed as sixteen 4K "serial parallel serial" blocks, in which one bit from any one of the blocks can be addressed.

Fabricated in the double-poly N-channel Isoplanar process, the memory features TTL compatibility of addresses, data input, write enable, chip select and data output, and its organisation is such that the device can be packaged in a standard dual in-line package.

The device operates from 1MHz to 4MHz, over a temperature range of 0-55°C. Power consumption is quoted at 4 microwatts per bit at 4MHz active and less than 1 microwatt per bit at 1MHz standby mode.

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USER FORUM

Edited by John Kavanagh

Leased hardware is user's responsibility

USERS are less aware than they ought to be of their obligations in the maintenance of their computer equipment, and some appear to remain ignorant of the fact that the hardware is their responsibility, whether purchased or leased.

This is the view of Max Eastwell, UK divisional general manager of Data Processing Customer Engineering, which last year scored a singular coup by winning British Airways' mainframe maintenance contract away from IBM.

"If leased," he says, "the equipment is still the responsibility of the user. He is responsible to management, which in turn is responsible to the leasor for its condition at the end of its term of use.

"If the equipment is purchased outright, the user is responsible to management for an important capital asset, its proper use and its length of useful life."

Eastwell calls the fact that these points are often overlooked the "rental syndrome," and explains how it came about.

"Firstly," he says, "the equipment was rented by the supplier to the user, and all services were bundled in the rental price. The supplier took over from there, and the people in the user group normally responsible for the condition of inventory, for performance and so forth, were cut off from the responsibility for equipment.

"There was no requirement for the user to know what preventive maintenance was being done, or what changes or modifications had been recommended by the manufacturer.

"So long as downtime didn't become a real embarrassment there was no fundamental requirement for the user to know the condition and how reliable it really was. As a result of this cossetted treatment, the user lost his sense of identity with the equipment and genuine control rested almost entirely with the supplier."

Even when the user moved on to purchased equipment next time around, the same attitude prevailed, according to Eastwell.

"Encouraged by the supplier, he still remained remote from maintenance aspects of his hardware, but now he was ignoring the cost-effective functioning of an important item of equipment for which he was now entirely responsible."

Eastwell acknowledges that many DP executives now recognise their responsibility, but says suppliers are fighting every move the users make to try to get free.

"Only our engineers have the competence to fix our equipment, they say. Or only our people are motivated to care for your hardware as it should be. And then when the user still shows signs of wavering, they say they don't like outsiders handling their equipment, and refuse to provide spares or only offer them on extended turnround.

"And they refuse to allow third party maintenance organisations to use diagrams and diagnostics."

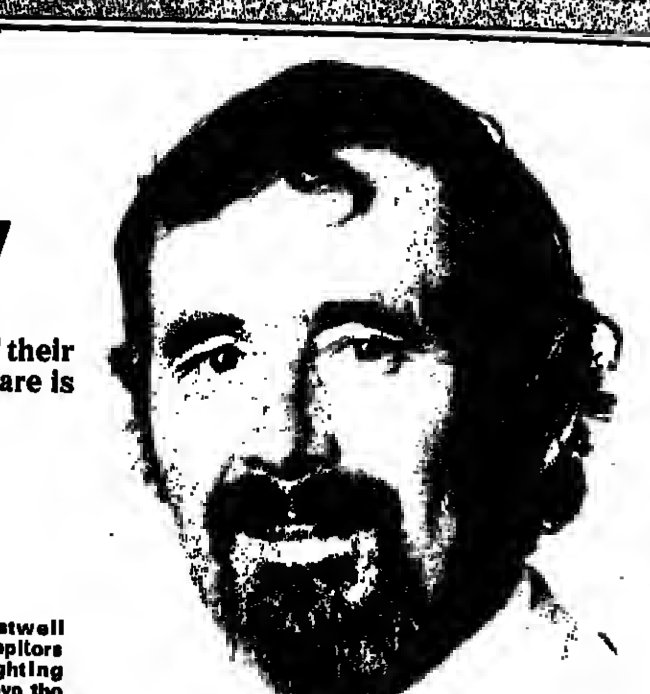
Eastwell points out that the growth of mixed vendor sites means that the best way of getting round the problem of which supplier is responsible for a particular failure is to bring in a third party organisation for all maintenance.

He believes that, as in the motor car and aircraft industries, supplier-maintained computer equipment should be the exception rather than the rule.

"The UK government must act and act quickly to create a climate in which there is encouragement for the provision of better products and services at lower prices," he says.

"They themselves are stifled and constricted in their choice of services by the policies of their principal indigenous supplier. ICL refuses point blank to provide to independent maintenance companies the support services which should be provided. They will not provide access to diagnostics, spare parts or technical support.

"The user has the right to choose who maintains his equipment, and independent maintenance organisations have the right to compete on equal terms with the supplier. But at present in the UK they cannot. I invite ICL to set a good example to the other equipment manufacturers: the company is strong and efficient enough to do so."



Max Eastwell . . . "suppliers are fighting every move the users make to try to get free."

PROFILE

B1700 Users' Group (Scotland)

THE B1700 Users' Group (Scotland) has 14 member installations — virtually all the Burroughs B1700 sites in Scotland.

Although some members are also in the UK Association of Burroughs Computer Users, they say that there is no B1700 sub-group for Scotland in the association, and point out that most of its meetings are held in the south and so cost Scottish members a lot of time and money to attend.

However the group has close contact with the main association. It has also talked as a group to Burroughs' regional managers and hopes to get official recognition by the company in the next year.

B1700 users or potential users in Scotland can contact the group through the secretary, A. F. Ramsay, DP manager, William Grant & Sons, Pork Road, Paisley. Telephone 041-884 3211.

ICL replies to Eastwell challenge

ICL has responded to the trenchant and challenging things said by Max Eastwell about ICL's attitude towards independent companies, with what it regards as a full defence of its policies.

It also rebuts some of Eastwell's statements.

The company insists that it does recognise the right of owners, but not renters, of its equipment to choose an independent maintenance organisation, or to do maintenance themselves.

"However," says ICL, "we have made a heavy investment in order to provide a comprehensive maintenance service designed to ensure that our customers have maximum use of their equipment at a competitive price.

"This has involved the establishment of an extensive maintenance network and heavy investment in spares, in training, and in the development of advanced fault-finding and diagnostic techniques in order to reduce maintenance time."

The company says that it believes its maintenance facilities give it a competitive edge, and sees no good reason why they should be released to organisations not prepared to make a similar investment themselves. It is not prepared to release fault-finding and diagnostic routines which have been developed by ICL maintenance division to make its own work easier and quicker, and less costly, nor will it divert support personnel to help out independents who run into trouble.

Maintenance manuals are available at a "reasonable cost", and as for spares, it says that independents must operate in exactly the same way as ICL maintenance division. That is to say they must either retain adequate stocks themselves or order sufficiently far in advance that their requirements can be incorporated in ICL's procurement and manufacturing plans.

Impact of the Unfair Contract Terms Act

A NEW Act of Parliament, the Unfair Contract Terms Act comes into force on February 1 1978. Such laws seldom greatly concern the computer user, but experience in Australia of a piece of consumer legislation has raised queries about the possible impact of the UK Act.

Since July 1, all the major computer suppliers in Australia apart from ICL and Fujitsu have refused to sign contracts for new equipment because of their dissatisfaction with the Australian Trade Practices Act (CWI, September 8).

There is as yet no indication that anything similar is likely in the UK as a result of the Unfair Contract Terms Act, but there is some uncertainty over the legal definition of the word "reasonable" in clauses which restrict the supplier's liability for damage to a user's property.

ICL anticipates no problems from the new Act, because of the way it draws up its contracts. A spokesman explained that the company had been able to continue trading in Australia because its contracts already complied with the Australian as well as the new UK Act.

Honeywell does not anticipate any problems with the UK Act either, but IBM, which has led the fight against the Australian Act, would only say that as with all new legislation, its lawyers are examining the implications for IBM of the Act.

The terms of the Act make invalid clauses in business contracts which limit liability for death or personal injury, signed on or after February 1.

Where a supplier's negligence does not result in death or injury, but only in damage to property or business, the Act then resorts to the imprecise statement that the terms of the contract limiting liability must satisfy a "test of reasonableness." The courts will have to determine the meaning of this test of reasonableness.

Under the terms of the Act business includes the activities of government departments and local authorities. It covers contracts involving rental and lease as well as sale of goods.

Tales from the Computer Room

IF you want a Christmas present for your favourite programmer you could try Tales from the Computer Room,* a collection of stories, parodies, science fiction and poems compiled by Dr John Race, of Brunel University, from magazines ranging from Men Only to Computer Decisions.

*Tales from the Computer Room, [illegible] pp, 65p and 10p for postage. Brunel University Bookshop ("Tales"), Uxbridge, Middlesex.

'Go out and broaden your horizons'—NCC director

USER VIEW

THERE has never been such a time of social, political and technical uncertainty in the computing community and data processing managers should go out and get a broader context in which to consider their tasks in order to take better decisions and enable their operations to respond sensibly to new situations.

This view is put by David Firnberg, director of the National Computing Centre and himself an ex-data processing manager, in the NCC's journal Interface.

"In an industry where both the technology and its application are developing so rapidly that tomorrow becomes today before we have even noticed it, every one of us must occasionally get out of the cocoon of his immediate surroundings and take a long, hard look at where computing is going and the way in which he should guide the organisation employing him," writes Firnberg.

On the social and political front, computing is contributing to the changing relationship between management and labour, he says.

On the technical front, says Firnberg, new technologies like bubble memories, fibre optics and voice input are closer than we think. And there is a growing trend to focus data processing not on a mainframe but on an automatic switchboard as computing and communications converge.

Firnberg says these developments mean that the data processing manager is presented with a bewildering array of opportunities but still surrounded by a battery of constraints.

So Firnberg's message is: Go out and broaden your horizons, through courses, seminars and conferences: "We have ample opportunities to update ourselves on the specific aspects of computing affecting short and medium term problems through innumerable training seminars and conferences held throughout the year."

Are data processing managers concerned about or even interested in the type of developments mentioned by Firnberg? Or do their worries centre on more mundane things like where they are to find some more programmers? User Forum would be interested to hear your views.

User base for 2903 and 2904 moves up

THE ICL 2903 and 2904 user base has moved upwards over the last two years and companies with turnovers of over £20 million now form 30 per cent of the users, compared with only 1 per cent in 1975.

This fact stands out clearly in a survey of the 2903 and 2904 market by the consultancy and software company Systemsolve (Computer Services).

Systemsolve's last survey, in September 1975, showed that the 2903 was very much a system for first time users. Almost 60 per cent of customers were companies with turnovers of less than £5 million, 36 per cent were moving to the system from an accounting machine and 31 per cent from a bureau. Only 11 per cent had previously run a computer.

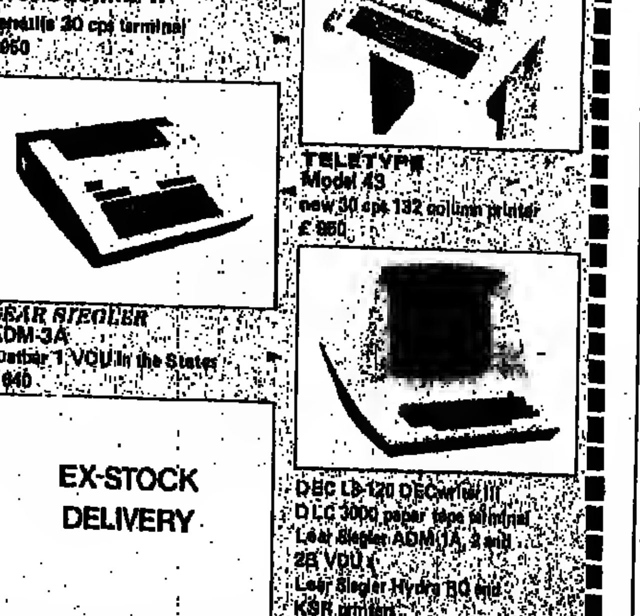
The latest survey shows that 41 per cent are moving to a 2903 or 2904 from another computer and the numbers which previously used an accounting machine or bureau have dropped considerably to 28 per cent and 19 per cent respectively.

Further signs of the increasing sophistication of users are in figures which show that fewer organisations regard ease of use, availability of packages and ICL support as important reasons for choosing the 2903 and 2904. And the percentage of installations using Cobol has risen from 44 per cent in 1975 to 63 per cent, while the number using RPG has dropped from 95% to 65%.

[illegible] facilities are now more important selection criteria. The number of installations with four terminals or more has risen from 8% in 1975 to 22%.

John Stanley, Systemsolve managing director, said the System 10 seemed to be taking over as ICL's first time user machine.

"The 2903 was the threshold machine two or three years ago," he said. "But now ICL is intelligently building [illegible] customer base with [illegible]



NEWS IN BRIEF

Privacy talks with Rees

POSSIBILITY of implementing the Council of Europe's recommendations on data protection is to be discussed with the Home Secretary, Merlyn Rees, by Michael Stewart, Labour MP for Fulham. Stewart has been asked to do so by the National Society for Crime Reduction and Social Justice, which is not satisfied with the Data Protection Committee drawing up recommendations for data protection legislation for the UK.

IN an effort to shake up its troubled Australian operations, where large 2900 sales have been disappointing, ICL has sent Peter Gyngell back to a "senior consultancy appointment". Gyngell, who was marketing manager for ICL's international division based in Putney, joined head office from various posts in the Australian company, in 1974.

FORMER Electronics Weekly communications correspondent Peter Fletcher has been appointed to the newly-created post of Viewdata manager at IPC Business Press. The company, which publishes a wide range of technical publications including Computer Weekly, is one of about 150 organisations providing information on the Viewdata service.

ONLINE access to Atkins Computing Services' time sharing and batch bureau is now available to users in Newcastle, Gateshead, Tynemouth, South Shields, Sunderland, Gosforth, Durham and Washington at local dial-up charges following the installation of a multiplexer in Newcastle-upon-Tyne. Initially lines will operate at 10 and 30 characters per second.

A MOVE into the Russian market has been made by ICL with an order from the Academy of Medical Sciences in Moscow for a 2903. The Academy co-ordinates research projects in the 50 medical research institutes around the USSR. (CW, October 20.)

FLEMING Frozen Foods of Glasgow is to supplement its ICL System 10 with a third VDU. The addition will enable the company to automate the delivery of its frozen foods and achieve a stricter control over stock and cash flow.

THE complete range of terminal hardware from Harris Data Communications is now being sold in Ireland by UCC (Datacom) Ltd. This is the Irish associate company of UCC (GB) Ltd. The Harris range includes the IBM compatible 8170 and 8180 systems manufactured by what was formerly Sonders Data Systems.

A TOTAL of 300 NCR 7740 proof encoders have been ordered by the Midland Bank. Valued at about £500,000, the order has brought the total number of NCR 7740 encoders in use by the bank to 2,000, valued at almost £3 million.

SOFTWARE house Infomatics has moved to bigger premises at Ferrari House, 102 College Road, Harrow, Middlesex, HA1 1BQ. The telephone number is 01-863 0066. The company's products include ledgar systems, teleprocessing monitors and an interactive validation and online inquiry package.

TO cope with growing business, Anglian DP Services Ltd has moved to new offices. Formerly known as Anglian Computer Services, the company's new address is Stratford House, Maldon Road, Danbury, Chelmsford, CM3 4QW. Tel: Danbury (024541) 4265.

Michie

"It is my embarrassing duty to award a great man a low mark." With that comment, Donald Michie, professor of machine intelligence at Edinburgh University, this week takes to task science fiction writer Arthur C. Clarke for some of the views he put forward in Computer Weekly's Futureview on November 10. What Michie pounces on is Clarke's belief than any problem which is theoretically computable can be solved by mortal men on planet Earth simply by piling on sufficient resources and advanced technology . . .

Clarke

Prof Michie awards low marks to Arthur Clarke

IN Futureview (CW, November 10), Arthur Clarke makes the following statement: "There just aren't any limits. I mean there are no technological limits to anything. There are financial and resource and time limits, but ultimate limits don't exist."

Since the context is futuristic computing, Clarke seems to believe that any problem which is theoretically computable can be solved by mortal men on planet Earth simply by piling on sufficient resources and advanced technology.

It is my embarrassing duty to award a great man a low mark. I would not pounce on the point if the complexity-theory principle involved were not important — as important as understanding the general notions of Einstein's relativity or Heisenberg's uncertainty if one wants to speculate about cosmology or particle physics.

Donald Knuth put the matter forcefully in his invited lecture to the American Association for the Advancement of Science: "It is . . . possible to prove that certain apparently simple problems in logic — which are known to be solvable in finite time — will never be solved in our lifetime, regardless of how clever people become or how many resources are committed to the project."

Without inaccuracy Knuth could have added " . . . nor even in the lifetime of this planet."

The awkward truth is that many a problem has a mathematically definable complexity such that for a working memory small enough to fit on Earth the fastest computation will be a large multiple of the planet's expected lifetime. Most people would put this at a mere 10^{10} more years or so.

Remember that the number of atoms that can exist in each cubic inch sets an upper limit to memory and to the degree of parallelism achievable by micro-miniaturisation, and that the speed of light sets limits to propagation and switching speeds. The crucial question then is "Does a *good* algorithm exist for this problem?", meaning by this that doubling the size of the problem increases the time to compute solutions by at most a constant factor.

This is not an ivory tower question. The Travelling Salesman problem, for example, crops up in industry in various guises, including in numerical control of punching and drilling tools, allocation and scheduling in machine shops, and of course in transportation. Methods are known for medium-size problems, but Knuth points out that "the algorithms are not 'good' in the technical sense since the running time goes up rapidly on large cases."

It is now believed that for the Travelling Salesman and for a class of equivalent problems of practical importance no good algorithm exists. If this can be proved then it will be no use Arthur Clarke telling us that optimal solutions to million-point TS problems will be computed by our biological descendants or by our electronic heirs. We will know better.

Having taken a pinch of salt, let me now apply it to Arthur's tail before he takes his readers off into yet wilder flights.

"To put it bluntly and brutally", he writes, "the machine is going to take over" and he produces out of his waistcoat pocket my colleague I. J. Good's Ultra-Intelligent Machine. And Good saw that it was God, as has been remarked — probably by Good.

My beloved mathematical friend once wrote to the Queen with the suggestion that she make him a Life Peer, on the irresistible (he thought) ground that people would then be able to say "Good Lord, here comes Lord Good!"

It is not that I doubt Good's UIM. On the contrary, I would probably predict a brisker rate of advance than would either he or Clarke. But I do not think that the evolutionary path will be one of *displacement* but rather of *symbiosis*.

Our children's children will interact so intimately with computation/communication systems as to gain the subjective experience of huge extensions of their own thought, imagination and memory. I have no space to develop the theme here. But even a glance at the Negroponte machine (CW, November 10) will give the imaginative reader food for thought, although nothing but today's mainstream technology is here involved.

Let me in conclusion nail a lordly and disagreeable lie. Intelligent and educated people, Clarke supposes, will know how to make something of the new marvels. But the vast mass of morons will goggle mindlessly or furtively scurry in the sidelines. That seems to be his vision.

People *can* of course be brutalised and barbarised under elitist regimes, as evidenced by the old Roman round of bread and circuses. But to imply that great numbers of our human kind are inherently incapable of anything more is the same as declaring that a dog can't run when it has never been allowed to see the rabbit.

One of the great new things is that for broad sections of the population of this Earth, the dog is going to see the educational and cultural rabbit for the very first time.

REFERENCE

D. E. Knuth (1976). Mathematics and computer science: coping with finiteness. *Technical report STAN-CS-76-541*, Stanford University: Computer Science Department.

French DP supremo

THE French Ministry of Industry has merged the two departments dealing with the development of the national computer industry under Jean-Claude Pelissolo, who now effectively becomes the government's computer industry supremo.

M Pelissolo was already head of Dieli, the body which oversees development of the electronic and computing industries. He now additionally takes over the "mission à l'informatique", which has three functions: to assess the impact of computers on society; to encourage public sector bodies to buy French-built computers; and to advise public bodies on the choice of systems.

Pelissolo became involved with the national computer policy three years ago. Previously he was noted as an arms salesman (CW, October 10, 1974).

Council orders a 2976

NORTH Yorkshire County Council has ordered a 2976 mainframe, ICL's scientific machine which incorporates the 2980 processor and the 2970 input and output controllers (CW, July 8, 1976). The Council is to replace its 1904S by a 2976 [illegible]

Wine and cheese advert 'not an inducement'

IS the offer of wine and cheese an inducement to attend a job interview? This point is raised by London reader W. A. Tooze in a letter complaining that an advertisement in Computer Weekly contravened the code of practice for recruitment companies introduced by the Computing Services Association (CW, October 20).

The advertisement, from Computer People, invited programmers and analysts to the company's offices for wine and cheese to meet informally managers from a firm looking for staff. The advertisement specified that "suitable candidates" were invited.

Tooze said this contravened the code, which states that a recruitment company "must not offer candidates any financial inducement, or inducement in kind, to reply to an advertisement, to attend an interview or to accept a job offer."

Bernard Jacobs, who led the team which drew up the code, said, "I think this complaint is taking things a bit far. It's not an inducement in kind which is being offered. People aren't going to stir themselves to attend for the sake of a glass of wine and a biscuit. There has to be an element of reasonableness about the interpretation. This clause is based on the Employment Agencies Act, which sought to stamp out practices such as offering calculators or £10 vouchers, which are definite inducements."

Jack Cowby, senior consultant at Computer People, agreed with Jacobs that there had been no contravention of the code. "If you're going to split hairs you could say that advertising a job was an inducement to attend an interview," he said.

North Sea oil simulation model marketed by Scicon

TWO systems developed by British Petroleum are to be marketed by the company's Scicon Computer Services subsidiary. They are the North Sea Simulation Model and Programmed Production Planning.

NSSM was developed to study problems in supplying cargo to drilling operations in the North Sea. The technique is already being used by Shell.

The PPP model can be used to represent all the processing and blending options available to an oil refinery and to calculate optimum [illegible] processing complex. The system has regularly been applied at the refineries in London, Kent, Gothenburg and Llandarcy.

The systems are to be run on two Univac 1108s in Milton Keynes and can be accessed through terminals installed at users' offices or via Scicon bureaux throughout the country.

Cost of a typical NSSM run is about £100 and several would be needed for a particular study. The same applies for use of PPP plus a consultancy fee, guidance [illegible]

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Interviews will be hald in London during December, 1977.

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Salary on the scele £2904-£4190 per annum, plus USS benefits (under review from 1.10.77).

Application forms and further particulere ere eveileble, by postcard request please, from The Personnel Manager (S03), The Open University, P.O. Box 75, Walton Hall, Milton Keynes, MK7 6AL, or by telephone from Milton Keynes 63868. Closing dete for applications, December 8, 1977.

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Further information from the Assistant Registrar, Science and Engineering, University of Birmingham, P.O. Box 363, Birmingham, B15 2TT to whom applications (three copies) including full curriculum vitae and naming 3 referees should be sent by 10th December 1977

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For an application form, telephone or write to Mr J. W. Heading, our Recruitment Officer, Sterling Cable Company Limited, Bath Road, Aldermaston, Reading 807 800. Tel. Wolverhampton 3221

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Please phone 01-788 7272 and ask for extension 2034, or write without delay, enclosing full details of experience to date, to Carole Hudson, ICL, Bridge House North, Putney, London SW6 3JX quoting reference CW1597.

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Ideally they require programmers experienced on IBM equipment and conversant in COBOL, ASSEMBLER, or PL1. However, retraining will be given to other applicants. As the work is spread throughout the Greater London area it is essential that applicants are mobile, preferably possessing their own car. The demands of this job are more than met by the rewards, a high salary, travelling expenses, profit share and regular social activities to ensure that everyone has a good time.

Ref. CW620

SENIOR PROGS to £5K

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Our client, an engineering company whose name is known and respected throughout the world, require experienced programmers. These vacancies are ideal for those people who have a good knowledge of COBOL and want to progress into a position of responsibility. Experience on IBM 370 equipment under DOS/VS would be preferable, but not essential. You would be assisting the Chief Programmer and a Systems Analyst in planning, writing and testing programs on both industrial and commercial applications. These include production control, order processing, stock accounting, ledgers and payroll. As the programming staff work as a team to cover all projects and have a close working relationship with the systems analysts, the work is both varied and interesting. Career progression into the systems area is actively encouraged. The company provides a subsidised canteen and an active sports and social club operates nearby. That, coupled with extremely pleasant, modern office accommodation, makes this a very worthwhile opportunity.

Ref. CW621

ANALYST PROGS £5-9K

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Ref. CW622

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Ref. CW623

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Ref. CW624

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SALES SUPPORT £5½K + Car

HARROW

Simplicity of operation, has proved a successful concept for our client, the first international company to develop and manufacture a purpose built Key to Disc System. They have maintained this concept with their new micro processor based, multi user, distributed processing system, which for ultimate ease is user programmable in ANSI COBOL. To support their busy sales force they require outgoing presentable young persons who would enjoy the demands of working in a fast moving environment. There is continual customer involvement both in pre and post sales support. You will need the necessary experience to undertake systems analysis proposals, demonstrations as well as customer training both in house and on site. The systems installed are all commercial and written in COBOL, a comperable background is essential. This is a great opportunity to put your programming and systems skills to good use while furthering your career in the more stimulating, varied and rewarding support environment.

Ref. CW625

SUPPORT ANALYST £5½K + Car + Bonus

LONDON & THE NORTH

A manufacturer's success depends on its products and its people. Our client, an international mini computer manufacturer offer the most wide ranging compatible product line available from any company today. Their processors range from micros to powerful medium sized computers. These are backed by a vast selection of peripherals, and of prime importance, a comprehensive range of software. The people they require are support analysts to work in a pre-sales role. This is not a desk job. Most of the time will be spent working alongside the salesforce to provide their customers with necessary software expertise and systems advice. Demonstrations, benchwork programming and design are all part of the job. An in-depth knowledge of mini computer system software, operating systems and application is essential, also programming ability in ASSEMBLER and COBOL and/or FORTRAN. Special systems experience in communications or database techniques would be advantageous. As well as positions based in W. London this company also seeks staff in Birmingham and Manchester.

Ref. CW626.

SENIOR PROG to £5½K

LONDON N.W.10

This senior position would be suitable to someone with very good COBOL experience. As you may be required to supervise a team of less experienced programmers, you should be able to show experience or ability in this area. You will be responsible for program design and specifications and will also be expected to communicate with users. The company, one of the largest food groups in Britain, operate extensive real-time on-line systems, linking their warehouses, factories and distribution depots with the central computer. They have just completed the design of the first part of a stock accounting and control system which they are going to integrate into their existing order processing and ledger accounting systems. You would be involved with programming this new system and assisting in its development for the future. Career progression is encouraged and regular training courses are arranged to provide the necessary skills. The company also has vacancies at a programmer level.

Ref. CW627

SYSTEMS ANALS to £6½K

BRENTFORD

Suitable candidates for these very attractive positions should have a background of at least 3 years' in-depth commercial systems and 2 years' COBOL programming and will probably be graduates. Our client is a major international company involved with the design, engineering and construction of, among others, petrochemical processing plants. The size of the company's operations is reflected in the size of the computer systems being developed. Successful candidates will be responsible for developing part of a project cost management system, including detailed discussions with various users, and will be leading a team of around 5 people. A limited amount of travel between company locations, possibly abroad, is to be expected. Completion of this system in mid 1979 will bring about the integration of all the company's financial systems and provide management with a more accurate means of costing and budgeting a project. Database systems will be developed in the future, so career prospects are excellent. Opportunities also exist for analysts/programmers and programmers on this system.

Ref. CW628

SOFTWARE PROG c £5½K

ACTON

If you have a thorough knowledge of IBM Assembler and are looking for the opportunity to work on software, this position would be of great interest to you. You will be working with the systems programmer on a variety of interesting software packages including an on-line program development system, an expanding TP network, a DOS/VS operating system and future development of a database system. Experience of these sophisticated systems is not necessary as training will be provided. Suitable candidates would be mature, responsible people who have probably reached a senior programmer level.

Our client, who organise and manage community resources, offer job security, steady career prospects and an attractive range of fringe benefits. These include 5 weeks' holiday, flexible working hours, and interest free season ticket loans. They will also provide 100% removal expenses, pay legal fees up to £300 and in suitable cases, lodging allowance.

Interesting work together with attractive fringe benefits make this an excellent opportunity.

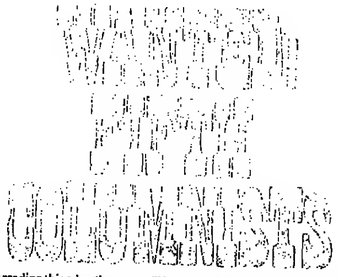
Ref. CW629

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION



A lot of people reading this advertisement will be able to tick one or more boxes in the first four columns. The fifth is the problem. If you can tick one or more in the first four *and* one or more in the fifth we can virtually guarantee that our client would like to interview you.
Equally important, we think you would like to interview him.

1 Have you held a position as	2 Are you currently earning circa	3 Have you had experience with	4 Are you interested in	5 Are you capable of obtaining
☐ Systems Analyst	☐ £3,000	☐ CORAL	☐ An excellent relocation package	☐ Data Transmitters
☐ Software Engineer	☐ £3,250	☐ ASSEMBLER	☐ Golf	☐ Digital Switching
☐ Programmer	☐ £3,500	☐ Low Level Languages	☐ More money	☐ Systems/Software
☐ Group Leader	☐ £3,750	☐ Real-Time Systems	☐ Surfing/ Skin Diving	☐ Diagnostic Software
☐ O/ Manager	☐ £4,000	☐ 8080	☐ Living in the warmest part of the UK	☐ Device Handlers
☐ Applications Engineer	☐ £4,250	☐ 6800	☐ Sailing	☐ Logic Circuit Design
☐ Computer Maintenance Engineer	☐ £4,500	☐ PDP11	☐ Housing at reasonable prices	☐ Microprocessor applications
☐ Test Engineer	☐ £5,000	☐ DEC	☐ Fishing	☐ Telecommunications
☐ Circuit Designer	☐ £5,500+	☐ PP250	☐ A variety of opportunities	☐ Analogue/Digital Systems

We realise that we have used some cliché words/phrases like "opportunities" and "housing at reasonable prices" which appear in a lot of other ads. But they happen to be accurate.

The opportunities exist at graduate, assistant, senior, principal and chief engineer levels over wide fields of activity involving commercial or defence applications.

The location is the coast in the West Country.

If you have read this far, it should be worth the time – and the price of the phone call – to speak to John Nolan on 01-638 1891. He will give you all the extra information you need and will make sure that if you are interested you aren't kept hanging about for weeks.

Richard Owen Advertising
56 Moorgate, London, EC2.

MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

PERFORMANCE MEASUREMENT

NEAR READING **£6000-£8500**

A key department within our client's organisation comprises an elite team specialising in Performance Measurement and the Comparative Evaluation of various hardware and software products offered by major manufacturers.

The department is presently being expanded and a number of additional staff are required who have experience in carrying out benchmarking exercises using hardware monitors and other sophisticated techniques. In addition to organising system performance trials the positions call for a high degree of individual flair and initiative in reacting to findings to ensure optimum results are achieved in comparative situations.

Whilst candidates should bring expertise in any area of hardware or software performance measurement, specialist knowledge in any one of the following would be of particular interest: —

- ICL 1900/2900 under GEORGE/Systems 8 or K
- Univac 1100 under EXEC-8.
- Honeywell Series 60/64-60/66.
- Burroughs B700/800 series

The successful candidates will have the opportunity of broadening their horizons to a wide range of products and keeping abreast with the latest hardware and software available.

The Company has substantial interests throughout the world and provides its employees with extremely good conditions of employment and considerable scope for career advancement.

Please telephone for a confidential discussion or write to:
30 Fleet Street London EC4Y1AA
01-353 5089

Tired of your good ideas going down the drain? Not as a Systems Analyst with OSMA Plastics

Our client is Wavin Plastics, whose OSMA range of plastic building and drainage products are recognised market leaders. They have asked us to recruit a Systems Analyst for them at a salary of around £5,000 — someone who wants to become involved with the development of On-Line systems.

PROSPECTS

So many systems jobs don't really lead anywhere at all. This one does, and we can substantiate this by saying that if you have between one and two years' systems experience and you want to move into the development of On-Line systems, then have a look at Osma Plastics. They are in the forefront of their industry, a stable, growing company utilising the latest computer techniques, constantly satisfying the need of an extremely demanding management, but creating for their own computer staff some exciting technical opportunities.

So what must you offer in return? At least one successful system, be enthusiastic, enjoy your work, be creative and like working with a minimum of supervision.

LOCATION

Wavin Plastics are based just outside London, not very far from London Airport, an area which is easily commuteble to from extremely reasonably priced housing areas, which are also without doubt, some of the nicest areas to live in, in Southern England.

TO APPLY

Please apply to John Goldsmith by ringing 01-828 5356 during normal office hours, or outside normal office hours on Camberley 21266. Alternatively, please ring John Quenby, DP Manager for Wavin Plastics on Bedford 741220.
Ref. 1057.

Computing Services Association

WE ARE ALWAYS INTERESTED IN HELPING YOU WITH YOUR CAREER
John Goldsmith (Computer Recruitment) Ltd., 15, Buckingham Palace Road, London, S.W.1.
Tel: 01-828 5356–24 hour answerphone service.

JOHN GOLDSMITH (Computer Recruitment) Ltd.

SYSTEMS ANALYSTS

A Vital Rôle in Telecommunications

The Management Services Division of Cable and Wireless is engaged in the development of systems used to support our international telecommunications activities. We are planning a number of major projects involving the use of mini- and micro-computers, database techniques and distributed processing. We need experienced Systems Analysts to work with teams of programmers on these projects. You must be prepared to undertake some foreign travel, mainly to the Middle East.

Sound experience in all aspects of systems analysis and design is essential; good business sense coupled with a strong personality is important.

These appointments represent opportunities to build successful and rewarding careers with us. Commencing salaries will be at least £5,000. In addition, a wide range of benefits, including foreign travel allowances, are applicable.

To discuss these appointments, ring Howard Yates on 01-242 4433 extension 4596. If you prefer, write with brief career details to:

Recruitment Manager,
Cable & Wireless Limited,
Dept. A664(s)/782,
Mercury House, Theobalds Road,
London WC1X 8RX.

The Cable and Wireless Group — comprising over 40 companies operating in 70 countries — is the world's largest international organisation supplying telecommunications services and facilities. Systems and services embrace space, radio, cable, telephone and specialised networks; broadcasting and television, telephony, telegraphy, telex, facsimile and data.

Cable & Wireless
Leaders in International Telecommunications

Expanding travel/hotel group in pleasant seaside location near Folkestone is strengthening its computer department and requires the following personnel:

D.P. MANAGER c. £6,000 + CAR

PREFERRED AGE 30+

The ideal candidate will have at least several years' experience at D.P. Management level and some experience using system 3. Our hardware is 96K system 3 model 12 and 3270's. In depth knowledge of C.C.P. is essential, as is experience in liaison with end-departments. The successful candidate will report directly to the Managing Director and is responsible both for day-to-day running of the computer department and its future development.

SYSTEMS ANALYST c. £5,000

Having several years' experience of system 3, the successful applicant will report to the D.P. Manager.

Both positions offer attractive working conditions, help towards relocation expenses and other fringe benefits.

Apply in confidence, enclosing C.V. and details of current earnings, to:

Roger De Haan, Managing Director
INTER CITY TOURS LTD.
Enbrook House, Sandgate, Kent

These positions are open to both male and female applicants

WESSEX REGIONAL HEALTH AUTHORITY

DATA PREPARATION TEAM LEADER

required for our Computer Centre at Winall, Winchester. Applications are invited from suitably qualified and experienced persons to be responsible to the Data Preparation Supervisor for a small team of Key Edit Operators. Candidates should, ideally, be experienced in Key to Disc.

Good working conditions and canteen facilities available.

Salary Scale Supervisor II, £2,620 rising to £3,066 inclusive of supplements.

Job Description and Application forms, available from the Personnel Department, Highcroft, Romsey Road, Winchester. Telephone: Winchester (0962) (Ext. 350/471.

Closing date: 29th November, 1977.

LOWFIELD (STORAGE & DISTRIBUTION) LTD.

REAL-TIME PROGRAMMER

Up to £3,760 p.a.
Daventry, Northants

Lowfield, a subsidiary of Imperial Foods, provides a national food delivery service based on major warehousing and distribution depots throughout the U.K.

At our Daventry Headquarters we have a small software team developing advanced real-time commercial data base systems using a distributed network of Data General Computers.

We are now seeking to strengthen this team with a man or woman, preferably with two years' low level programming experience on minis.

Please write giving details of age, qualifications, present salary to: Personnel Director, Lowfield (Storage and Distribution) Limited, 4-6 Church Walk, Daventry, Northamptonshire.

JBA

Senior Consultant

Sales Division Herts **package £9000 + car**

A highly successful computer manufacturer is seeking to appoint a senior member for a team which is totally responsible for the company's larger systems sales. Candidates will be able to demonstrate previous experience of project control, probably in a post sales support role: have the ability to identify customer requirements: co-ordinate resources, and to deal positively with clients. Proposal writing and presentations are both considered important aspects, an understanding of Distributed Processing, DBMS applications and experience on large mainframe machines would be a distinct advantage.

Excellent career potential.

Contact Margaret Stevens

Systems Consultants

London and Home Counties **up to £7250**

Our client, one of the largest software houses in Europe, has vacancies for systems staff to work on a variety of projects in the South of England.

Applicants must have at least four years' in systems analysis and design and several years in programming. Experience of commercial applications using mainframes and minis would be ideal.

Excellent salaries and opportunities.

Contact Jim Baker

Chief Programmer (RPG 2)

Central London **circa £6000**

A large commodity trading company with an IBM installation seek an experienced RPG 2 programmer looking for a senior post. Duties will be to supervise programming and operations staff, maintain and ensure adherence to standards and liaise closely with Systems Analysts.

The likely applicant will probably be between 24 years and 30 years, progressive, self assured and capable of dealing at all levels. Excellent prospects.

Good opportunity for right person to really establish a career path.

Contact Mike Creamer

Systems Engineer/Analyst

West of London **neg. circa £6000**

Applications are invited from those who can make an immediate contribution in a demanding technical role. In order to qualify for this job it is essential that candidates have experience of commercial or manufacturing applications and be able to demonstrate a thorough knowledge of an Assembler level language. Specialist skills, such as real-time development on minicomputers will be highly valued. This is a chance to work on possibly the most advanced manufacturing control system outside the U.S.A.

An excellent opportunity for the ambitious technician to join a small but highly professional team.

Contact Margaret Stevens

Minicomputer Programmers

Berkshire **c.£5750**

A large and well established British company has outstanding opportunities for programmers to work on the development of sophisticated real-time systems.

Candidates must have at least one year of programming in either Assembler, CORAL or FORTRAN on technical or commercial applications. Experience of real-time projects would obviously be an advantage.

These vacancies offer the chance to work with a professional team using new techniques for advanced systems.

Salary according to experience. Generous fringe benefits and relocation assistance.

Contact Jim Baker

Australia

Approaching summer, very high standard of living, good salaries, and varied unparalleled opportunities must make Australia an attractive prospect at this time. If you are seriously considering a move, contact us for our free counsel and help in locating a good career situation.

Currently in urgent demand: Honeywell 6000 or Level 66 personnel; CICS expert; IBM COBOL Programmers.

Contact Mike Creamer

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

JAMES BAKER ASSOCIATES
International Personnel Consultants
16 Maddox Street, London W.1. Tel: 01-491 4478

WEST YORKSHIRE

SYSTEMS ANALYST To £4500 + car

General commercial systems expertise required. Must have higher educational qualifications, preference will be given to people with manufacturing systems experience

SENIOR ANALYST/PROGRAMMERS £4300 + Review

Medium size installation running ICL hardware requires two senior analyst/programmers for commercial applications. Good career prospects.

ANALYST/PROGRAMMER to £4400

This manufacturing company are seeking a well experienced COBOL programmer who has had some systems design experience and would like to further it. High proportion of new development planned

PROGRAMMER/ANALYSTS to £4900 incl. Bonus

Major software house requires additional staff for new contracts Medium to small mainframe COBOL experience required Dedication and effort are rewarded in cash

MAINTENANCE PROGRAMMER to £3900 + Review

Maintenance and development work in medium installation Preference for people with some systems knowledge.

PROGRAMMER to £4500

Large installation requires ANS COBOL programmer. Preferably with Data Base experience in a CICS + Batch environment. Excellent opportunity in a growing installation.

These are representative vacancies only. Telephone for further information of these and many more in the north of England

QUEENS ROAD MILLS, QUEENS ROAD HALIFAX HX1 1LR. TELEPHONE: HALIFAX 04422 68232

QRH

SCHOOL EXAMINATIONS DEPARTMENT UNIVERSITY OF LONDON

PROGRAMMER

UP TO £5,261 inclusive

- ★ **Salary scale: £2904-£4811 plus £450**
- ★ **Six weeks' annual leave, plus official** Bank Holidays and an additional days
- ★ **Interest Free Season Ticket Loans**
- ★ ***Membership* of the Universities' Superannuation Scheme**

Applications are invited from programmers with at least eighteen months' experience in PLAN and preferably with a working knowledge of COBOL to join a team of programmers responsible for the processing of the University's GCE Examination in U.K. and Overseas. An ICL 1903T computer is used and processes information stored both on disc and magnetic tape files. Applicants should be familiar with GEORGE operating systems.

Application forms and further particulars from Miss June Ritchie, School Examinations Department, University of London, 66/72 Gower Street, London WC1E 6EE. Tel. 01-636 8000 Ext. 90. Closing date for applications is 8th December, 1977.

EXCESS

Computer Operator

TIRED OF COMMUTING?

BORED WITH YOUR SURROUNDINGS?

If your answer to these questions is 'yes' take a look at what Excess can offer . . . . you may find you are in for a pleasant change.

Salary circa £3,600 including shift allowance

plus:

Modern offices in delightful surroundings

Non-contributory pension fund and life assurance

Luncheon vouchers and subsidised canteen

Mortgage subsidy after a qualifying period of service,

Excellent sports and social facilities where you can meet lots of friendly new people

We are operating an IBM 370/138 and presently developing teleprocessing and data base systems. We need someone with at least six months' experience gained on IBM equipment with knowledge of DOS VS and GRASP/POWER willing to work on a shift basis.

If you are interested please write or telephone:

Irene Northcott, Personnel Officer
Excess Insurance Group
The Warren Warren Road Worthing
West Sussex BN14 9QD
Telephone Worthing (0903) 38933

Watch this space for details of the next Square One Open Evening on 5 Dec.

Come and talk to us over a beer and a sandwich, and discuss worthwhile opportunities in a company where skills and hard work really count.

150 Regent St, London W1

one

Square One Computer Services Ltd 02405 74181

SENIOR PROGRAMMER c. £7,500

LONDON, S.W.1

An experienced COBOL programmer ideally with FORTRAN and/or ASSEMBLER, and with in-depth knowledge of the IBM/OOS operating system is required. The ability to manage a small programming team and generate original thought in the areas of systems and programming standards and efficient machine usage, would be advantageous.

SENIOR SYSTEMS ANALYST c. £6,500

SOUTH BUCKS.

A large manufacturing group with continuing expansion of their data processing activities, requires a senior person to help them move into a multi-programming environment. This vacancy could provide the opportunity for advancement within the group

TRAINING OFFICER (OPS) c. £5,000

HOUNSLOW

The position would suit a mature person with communicative skills and good IBM/ICL operating exp wishing to come off the shift system. If you would like a more responsible position with a sophisticated company, imparting your operator skills and co-ordinating training schemes, please contact us

Please phone for an application form for the above vacancies or for information about a job to suit you

AMES PERSONNEL

TELEPHONE: 01-767 0611

BUSINESS SYSTEMS ANALYST

LONDON WEST END

Mills and Allen International Limited, a large group of companies with interests in poster and cinema advertising, money broking and printing require an analyst to assist the Systems Development Manager in the introduction of new Methods and expansion of existing computerised systems.

The group already uses several bureau facilities to provide its computing power, and plans are being formulated to expand into online enquiry systems within the next year. In addition one of the group companies will be acquiring an in-house computer due to be live in July 1978.

Future development plans are extremely varied, and the successful applicant will be expected to design, formulate and implement the correct computer solutions for the appropriate business requirements.

Qualifications are not rigidly defined for this post, but the successful applicant is not likely to have had less than three years analysis experience, preferably with a strong commercial background and some knowledge of on-line computing techniques.

A salary in the region of £6500 can be expected with further increments negotiable for applicants with the necessary experience.

For further information write to **Chris Ryan, Systems Development Manager, Mills and Allen International Limited, Buchanan House, 24-30, Holborn, London EC1N 2JY, or ring 01-405 8561.**

Manchester

Computer Project Staff

Project Managers

We are seeking two project managers, one to handle industrial process control projects, the other to handle projects involving data communication networks.
Our project managers take responsibility for all aspects of a project. Internally they are responsible for co-ordinating resources, managing the engineering and software teams assigned to the project and meeting the performance specification within the planned budget and time scale. Externally they provide the main link between the customer and the Company. These are senior appointments. Applicants should have a good scientific or engineering background and substantial experience of real-time computer applications in a relevant field, with either a supplier or a large user.

System Designers/Programmers Project Engineers

We have vacancies at senior and intermediate levels for a number of system designers, programmers and project engineers to join project teams, handling real-time computer applications.
These are attractive openings for competent professionals who are looking for technical challenge and advancement. Candidates should have at least two years' experience in the real-time field and successful applicants are likely to have a degree in computer science, mathematics, physics or engineering.
Successful staff in these categories can expect to progress quickly into senior systems design or project management positions.

Technical Authors (equipment and software)

Good technical documentation—design specifications, operating manuals, programming manuals, maintenance manuals—is essential to the success of any advanced computer project. Our technical authors gather information first hand as full members of the integrated engineering and software project teams and are responsible to the Project Manager for writing all the technical literature with a minimum of supervision.
Self-motivation, a logical mind and the ability to write clear concise English are more important than formal qualifications although most of our best authors do have a good academic background. Naturally, experience in computer software or engineering would be an advantage but we are prepared to provide training for candidates from other disciplines who are otherwise suitable.
FERRANTI LIMITED is a wholly British Company. We design and manufacture the ARGUS 700 range of computers and are European market leaders in supplying real-time industrial process control and on-line data communication systems.
Being system suppliers as well as equipment manufacturers our staff are able to see projects as a whole and the interactions between hardware and software designers within their own control. Professional development is encouraged.
Competitive salaries will be offered. Generous relocation allowances are available where appropriate. Our offices and laboratories are in a pleasant part of South Manchester close to very good residential areas.
Apply in the first instance to Mr. W. L. Robinson, Ferranti Limited, Simonsway, Wythenshawe, Manchester M22 5LA giving brief career details (quote reference WD15/CW).

Informal Interviews

If you would like an informal discussion on career prospects with Ferranti in any branch of computer system design, software, project engineering, sales or customer support, senior members of our staff will be happy to meet you at one of the following times and places

LIVERPOOL:	Adelphi Hotel,	Tuesday 29th November 4.30 pm to 8.30 pm
STOKE-ON-TRENT:	George Hotel, Burslem,	Thursday 1st December 4.30 pm to 8.30 pm
LONDON:	Charing Cross Hotel,	Monday 5th December 4.30 pm to 8.30 pm
WATFORD:	Beehive Hotel,	Tuesday 6th December 4.30 pm to 8.30 pm

Don't make an appointment just arrive.

FERRANTI
Wythenshawe Division

We want someone to tell us where to go

Not literally, of course, but we do need an experienced computer professional to conduct specific research into the application of both hardware and software, including packages and programs produced by Software Houses, Bureaux and other agencies, to enable our computer department to expand in the right direction.

As our Senior Systems Programmer you will undertake feasibility studies and produce evaluated reports on the use of programming techniques and software. You will be required to estimate and review the time and costs involved in producing Research Group reports and prepare software as well as prepare detailed programming specifications and outline flowcharts for the more complex programs and sub-routines.

You will need to be an experienced computer professional with a thorough knowledge of programming in 1900 COBOL, GEORGE 2+ and a proven knowledge of on-line real-time systems.

Salary is up to £6797 per annum inclusive. 35-hour, 5-day week with flexible hours of operation.

If you would like the opportunity of telling a computer where to go, please write for an application form to our Personnel Officer, Town Hall Forest Hill London E17 4JF.

Please quote reference B.748. Closing date: 9th December 1977.

London Borough of
Waltham Forest

Computer Personnel International

110 St. Martin's Lane, London WC2N 4BH
Telephone: 01-836 6775

OPERATORS SHIFT LEADERS DATA CONTROLLERS

I have lots of extremely interesting jobs on file for Operations Staff from Trainee Operator to Operations Manager. If you are contemplating a change why not ring me — I may have the perfect job for you.

STOP PRESS — SENIOR OPERATOR WITH PROSPECTS TO SHIFT LEADER. GOOD IBM DOS EXPERIENCE ESSENTIAL. SALARY TO £5,000 INCLUSIVE.

Contact: EVE LUDEMAN

SYSTEMS ANALYST c £7,000 CENTRAL LONDON

Our client, the British office of a major U.S. organisation, using IBM equipment, now wish to appoint a Systems Analyst for their highly professional computer department.

As a skilled member of the computer team, you will be responsible to the Systems and Programming Manager for the analysis, design and implementation of various new applications including on-line systems. You will be a measurable entity in your own right and you will receive training to enable you to progress along a well-defined career path.

Competitive company benefits include, amongst others, free lunches, non-contributory pension scheme and season ticket loan.

Contact: MARILYN DAVIDSON

INTERVIEWS — NEW YORK, USA IBM O.S. COBOL ANALYST PROGRAMMERS

One of the most prestigious consulting companies in America has vacancies for several high-calibre Date Processing Professionals, who will be assigned to one of several locations in the USA, including major cities and semi-rural areas. In the States, Analyst Programmers are expected to demonstrate ability in a broad range of skills — user liaison, analysis, program design, coding, testing and documentation. For these vacancies OS COBOL is mandatory; any experience in specialist areas, such as IMS, CICS, PL/1 would be of particular interest to our client. Standards of selection will be very high, but candidates who are short-listed will be flown to New York's Kennedy Airport (at our expense) and taken to our client's office for a final interview. An excellent salary package will be negotiated.

Contact: LINDA BENSTED

Real Time People | Computing Services Association | Computer Room People

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ASSYST

Computer Services Group
SALARY UP TO £9,000 PER ANNUM

ANALYST/PROGRAMMERS

Experience IBM SYS/3 (and preferably IBM 370) with programming experience of RPG II and COBOL.

Three of these positions are for our office in Al Khobar, **Saudi Arabia,** where benefits include:

- ★Tax free salary
- ★Free housing
- ★Free Medical and Insurance
- ★Free Transportation
- ★Free air fares to U.K.

The other position is for our Branch Office in **Amstelveen,** Netherlands.

ASSYST is the leading computer bureau and consultancy group of companies operating in Saudi Arabia and Gulf and has offices in Riyadh, Al Khobar, Dubai and Amstelveen. The company has grown considerably in the past three years and offers a D.P. professional the opportunity to grow with it.

Please send your C.V. (or a brief letter outlining your experience) to:

Mr. A. Mordain
82 Kingsway
South Shields
Tyne and Wear NC33 3NJ
or telephone 0632 568273 after December 1st

MINI COMPUTER SALESMEN

EAST AND WEST MIDLANDS

BASE SALARY c.£5K p.a. QUOTA EARNINGS c£10.5K 2 LITRE CAR + EXPENSES.

Our client is a well-established international mini computer manufacturer, selling a range of disc based mini computers.

The company offers sizeable sales territories, an excellent product in hardware and application package terms, and good technical support resources against a background of a realistic sales quota.

Candidates should have a proven sales record within the mini computer/VRC sales field, coupled with a sound business systems understanding, and should reside in the Midlands. Prospects for future career development are excellent for self starters.

Company benefits include pension scheme, permanent health insurance, luncheon vouchers, etc.

CONTACT: DALE HADLEY on 021-236 3781 REF. NO CW/11/24

SPECIALIST COMPUTER RECRUITMENT LTD.
BIRMINGHAM 021-236 3781 FREEPOST
Freepost, Equity and Law House, 35-37 Great Charles Street Queensway, Birmingham B3 2BR
MANCHESTER 061-833 0676 FREEPOST
Freepost, Corn Exchange Buildings, Corporation Street, Manchester M4 3BD
LONDON 01-935 6671 FREEPOST 6
Freepost 6, 102, Blandford Street, London W1E 7JZ

SCR

Systems Programming-Europe & U.K.

These positions for men or women are within the recently created Switching New Products Division of STC and are based at locations in North London and Antwerp. The division is actively engaged in developing a number of processor-based products that control and augment the telephone switching network.

If you have at least 3 years experience in a professional programming environment, preferably real-time, then we would like to talk to you. We can offer the opportunity for your career to grow with a well supported and rapidly expanding division.

Salaries are attractive and reflect the importance of these growth areas of telecommunications. Generous relocation expenses are available and the Antwerp assignments, which are for one to two years, include an extensive range of additional benefits.

Present vacancies are at Team Leader and Programmer levels in three project areas:

- **SPC Telephone Systems: Antwerp then London**

  All aspects of telephone exchange software, including environment simulation, man-machine interaction and customer application engineering.

- **Network Administration: London**

  Design and development of systems software in centralized on-line supervisory centres for SPC exchanges.

- **Operator Systems: London with overseas travel**

  Specification and high level language programming for an add-on microprocessor network that supports telephone operators.

For further details please 'phone David Leevers on 01-368 1234, Ext. 2661 or write quoting ref SNP 22, to:
Tom Kerr, Standard Telephones and Cables Ltd., Oakleigh Road South, London N11 1HB.

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A British Company of ITT

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* overtime
(according to post)
car or allowance

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THE UNIVERSITY OF LEEDS

DEPARTMENT OF MECHANICAL ENGINEERING

Applications are invited for the post of RESEARCH OFFICER on an S[illegible] supported project in the above Department, to start as soon as possible. The Research Officer's main responsibility will be the development and implementation of on-line computer based instrumentation systems.

The facilities to be used include exclusive access to a PDP 11/70 with graphics terminals, and several [illegible] micro-computers. The computer forms part of the S R C [illegible] Computing Facility.

Applicants should be graduates or equivalent, preferably with a background in Computer Science, Electronics or Engineering. Experience in one or more of the following areas is essential: digital and analogue electronics; real-time computer [illegible]; transducer development. Experience of PDP 11 systems under RSX 11 would be an advantage.

A three-year appointment [illegible] with an initial salary in the range £3333-£4811 on the IA Scale for Research and Analogous Staff (under review).

Applications should give full personal details, with names of two referees and be addressed as soon as possible to Professor B N Cole, Department of Mechanical Engineering, The University, Leeds, LS2 9JT (Tel [illegible] 31751, ext 230)

ENGINEERS
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(Ref. 4037)

AMSTERDAM
ANAL/PROG c £10,000
Must speak fluent DUTCH — program in at least 2 languages — pref more than 1 machine exp.
(Ref. 4060)

SHIFT LDR.
CITY — to £4760
At least 1 yrs. exp. as Snr. Op. using DOS/POWER/CICS — Mobile — 2 shifts — prepared to work O/T.
(Ref. 4051)

NORWAY
RPG II — c £20,000
2-4 yrs IBM System 3/15 exp. Must have good on-line systems exp. — expenses paid in addition to excellent salary.
(Ref. 4038)

DUSSELDORF
PROGS — to £15,000
Anal/Progs & Analyst also required with COBOL &/or ASSEMBLER — IMS and Database exp — would consider freelance.
(Ref 4035)

JERSEY/HOLLAND/GERMANY
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They wish to appoint a Development Executive to assist in further expanding their field of operations, particularly through acquisition. The successful candidate will be responsible to the Managing Director of Thomson Data Ltd. and the duties will include the development of policies and the evaluation of ideas which will lead to further investment in the information retrieval field.

Candidates should be experienced in the commercial application of computerised information retrieval techniques and be able to bring to bear a business like attitude to the development of such operations. The successful candidate, who is likely to be aged 30-40, will have the necessary energy and drive to make progress in this key position.

Please write, with abridged curriculum vitae, to: Managing Director, Thomson Data Ltd., c/o Darwent Publications Ltd., Rochdale House, 128 Theobalds Road, London, WC1X 8RP.

Sales Executives in North and Midlands
circa £10,000+car

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The CASE Message Switching System meets the needs of large telex users by providing store and forward message transmission and automated dialling. On many systems VDUs with text editing facilities are used in place of teleprinters to prepare and transmit telex messages.

Additional Sales Executives are required in the North and Midlands to build upon the CASE success in Message Switching. Knowledge of mini-computers, data transmission or data terminals is minimum requirement.

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We pay top rates for the right people.

CASE is a young energetic company specialising in the manufacture of data communications systems. The company's products include multiplexers, concentrators, modems and message switching systems. Continuing expansion provides an opportunity to join an enthusiastic informal group in a job where salaries, conditions of service and career opportunities are excellent.

Make contact with CASE

COMPUTER AND SYSTEMS ENGINEERING

New Sales Support & Sales Opportunities — UK

A major International computer manufacturer is announcing in Europe an exciting proven range of small computers in the New Year. They therefore immediately require Branch Managers, Systems Analysts, Salesmen and Technical Support Personnel as well as a UK Training Officer. Previous experience should be with RPGII type computers or mini computers using commercial skills with a professional approach to problem solving. Personnel will have a marvellous opportunity to get in on the ground floor where salaries will be very competitive. Vacancies exist in W. LONDON, BIRMINGHAM, MANCHESTER and LEEDS. CW 47/9, Michael.

OPERATOR
City — To £4,500
If you have experience on any medium-sized system then this BURROUGHS 4700 user could be interested. 12-hour shifts. Nice perks CW 47/10 Patricia.

SENIOR OPERATOR
W. London — £3,750
A major chain store offering 10% bonus, N.C.P.s and discount shopping requires an ICL GII experienced operator with supervisory experience. CW 47/11 Patricia.

SENIOR OPERATOR
Bedfordshire — £5,000 + O/T
A major user having an advanced IBM OS/VS1 system using T/P requires operators who really know their business CW 47/12 Patricia.

PROGRAMMERS
Hemel Hempstead — c. £5,000
Are there any of you who have commercial FORTRAN? Good, then this multinational firm in Herts with top perks including free lunches and non-C.R.S is looking for you! Univac experience would be ideal but other machines acceptable CW 47/13 Annette.

SENIOR PROGRAMMER
N.W. London — £5,500
You must have 2 years' IBM ASSEMBLER or PL/1 and interested in working for an Insurance company with new projects. Company attractions include Flexitime, 3 weeks' holidays, subsidised canteen and mortgage assistance plus an excellent social club. CW 47/14 Annette.

PROGRAMMERS & SENIOR PROGRAMMER
South Coast — £5,500
This finance organisation situated in a lovely part of the coast (New Brighton), has a major IBM OS Installation and requires two people with COBOL experience (ASSEMBLER knowledge would be nice). Perks include C.P.S., L.V.s plus mortgage and relocation assistance CW 47/15 Annette.

SYSTEMS ANALYST
Ilford — c.£6,000
An involved Consumer manufacturer with a large Honeywell 6000 Installation requires an analyst with good business systems experience. Programming experience is NOT essential. Good prospects for promotion. CW 47/16 Annette.

SENIOR PROGRAMMER
SW1 — to £7,500
A very successful commercial service bureau, having an IBM DOS computer, needs an experienced COBOL programmer with more than the average ability. Must enjoy meeting and advising clients. L.V.s, C.P.S. etc. CW 47/17 Annette.

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SOUTH STAFFORDSHIRE PROGRAMMERS AND SENIOR PROGRAMMERS

GET IN THE RIGHT SPIRIT FOR CHRISTMAS WITH "PROJECT DEVELOPMENT"!

Due to continued expansion of their Computer Services Department, our clients, a major company in the leisure industry, are seeking computer professionals to augment their existing team.
They are utilising latest computing techniques and excellent opportunities are available for successful candidates to gain valuable experience in a developing commercial environment.

Openings available are:

SENIOR PROGRAMMERS Salary c.£4,800
Ideally applicants should have:
* 2-3 years' programming experience.
* Fluency in COBOL. * Supervisory ability.

PROGRAMMERS Salary c.£4,100
* 18 months'-2 years' programming experience.
* Fluency in COBOL.

The company offer excellent benefits including: pension and life assurance schemes, subsidised lunches, sports and social facilities, etc.
Contribution towards relocation expenses is available where appropriate.
For further details, please contact:
ROD BEESON, on 021-236 3781 — REF. NO. 77/11/23

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Computing Services Association

SCR

ARE YOU A SUPER PROGRAMMER?

The demand for first-class programming staff has never been so high. Listed below is a short list.

RPGII people to work for an exceptionally friendly Consultancy operation based in SURREY. Candidates must be prepared to travel and generally "muck-in" £6,500 + expenses.

FORTRAN people with Real time experience on any mini computer for scientific work on the SOUTH COAST.

COBOL DOS Expert to manage a small programming team, set up systems and programming standards, etc., for Service Company in SW1 £7,500.

ICL COBOL Junior with six months experience for Financial concern in EC4. Excellent training and prospects £3,000+

Opportunities also exist for JUNIOR ANALYSTS or ANALYST/PROGRAMMERS wishing to progress into pure systems work. Salaries c£4,500.

FLIGHT SIMULATION EXPERT FOR THE USA. If you have a minimum of 3 years' experience in design and programming on engine simulation and flight systems with a solid grounding in PDP 11/45 ASSEMBLER, then this is your chance to see a bit of the world at someone else's expense. You will be based in the States for at least 6 months, with all expenses paid and a flat provided, after which, there will be an excellent position available in the UK should you desire. £7,000 neg.

Similar posts available in the UK. Salaries to £7,000 neg.

PROGRAMMING CONSULTANTS A major Computer Services Company located on the BUCKS/HERTS BORDER has an urgent requirement for professional Programming Consultants with the following experience:
MINI COMPUTER SOFTWARE with compiler writing experience
MINI COMPUTER APPLICATIONS with experience of FORTRAN BASIC, ETC to work on DEC, Hewlett Packard and Data General machines operating on a turn-key basis with minimal travelling involved. Salaries to £6,500.

The same client would also like to hear from candidates with 2 or more IBM languages and TP/DATABASE experience to work on clients premises in and around the LONDON AREA.

COULD YOU MANAGE? The West End offices of a nationwide Bureau Operation seeks young intelligent DP professionals with the experience or potential to tackle responsible management and supervisory positions. In particular:

SURVEY ANALYSIS MANAGER to head a Department engaged in Media and Market Research applications. You will need a good systems and programming background and some familiarity with IBM equipment would be an asset, but the primary requirement is for someone capable of moulding the Department into an efficient unit. A great deal of client contact will be involved and excellent opportunities for advancement exist for the right person. Starting salary £6,000 neg.

The same client also requires a PRODUCTION SUPPORT SUPERVISOR who will be responsible for a team of three people writing and maintaining production ICL for a large OS Mainframe. Apart from using your good OS ICL knowledge, you will have the opportunity to meet clients, discuss their requirements and sort out their problems. While no actual shift-work is involved, you should be prepared to work flexible hours when necessary. Salary around £6,000.

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11 COBOL KICS DL/1 Programmers for Banking work. Central London. Start January 6 months.
SYSTEMS PROGRAMMER Conversion on IBM 360/65 to a AMDAHL Bern 3 months.
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Contact Sara Smith

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01-283 8237

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A KEY ROLE IN — PROJECT MANAGEMENT

Salary c£6,500 P.A. + Fringe Benefits

We have been asked by our clients to identify a Project Manager to work in their dynamic and developing environment. Applicants should be capable of developing, implementing and maintaining financial computer systems, utilising large IBM 370 series hardware, supporting increasing CICS on-line, and IMS data base systems.

Owing to the increasing scope and facilities at our clients Computer Centre the position offers exceptional challenge to imaginative computer professionals.

Candidates should be:

* capable of demonstrating management and technical skills in a financial systems environment.
* a graduate, or professionally qualified.
* able to achieve results through people.

Working conditions and fringe benefits are excellent including generous relocation expenses.

CONTACT CATHY TRACEY, 021-236 3781 REF. NO. CW/11/21

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Designate

c. £8,500 p.a. plus car

RTZ Computer Services is an independent company, within the RTZ Group concerned with the development of computer-based financial systems.

The rapid expansion of the time-sharing division of this company has created the need for further technical support. Reporting to the Sales Manager the person appointed will be required to provide technical support for the sales team, organise customer training and generally assist in the resolution of clients' technical problems, both for pre- and post-sales.

Candidates should have a sound financial background with a working knowledge of FORTRAN and some experience of BASIC.

Ideally we are looking for someone in his or her late 20s who is carrying a similar range of responsibilities at present. We are also willing to consider applications from less experienced persons who are looking for an opportunity to grow with an expanding company.

RTZ Computer Services — a member of the RTZ Group

Please apply in writing giving age, career to date and present salary or phone for an application form to: Philip W. L. Mair, RTZ Computer Services Ltd., 103 Jermyn Street, London, SW1. Tel. 01-930 4163.

SENIOR NUMERICAL CONTROL CONSULTANT

LONDON, S.W.1. UP TO £6,000

SIA is an International Computer Bureau offering timesharing, batch and remote batch processing services on dual CDC mainframes based in London. SIA is the market leader in technical computing and offers the largest and most comprehensive Numerical Control tape service in the U.K.

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Applicants for this position should have several years experience in industry working in a software development and technical support capacity for computer-aided N.C. systems on large mainframe computers, and must have in-depth experience of programming in FORTRAN.

The successful applicant will be responsible to the Industrial Systems Manager for the software development of a rapidly expanding range of N.C. systems and the technical support of a large client base. This will involve consultation with client representatives at all levels. Excellent prospects, variety, interest and technical challenge are features of this post. Benefits include a monthly bonus scheme, profit sharing, contributory pension scheme, LV's and good working conditions.

Please reply to: John Paton
Industrial Systems Manager
SIA Ltd., Ebury Gate
23 Lower Belgrave Street
London SW1W 0NW
Tel: 01-730 4544

sia

Shift Leader

Required for a rapidly expanding ICL twin 2904 installation with local and remote communication systems.

Applicants should have 3 years' operating experience, with a minimum of 1 year on ICL equipment, and be prepared to operate on a three-shift rota.

Our terms and conditions of employment are excellent and include 4 weeks annual holiday, subsidised dining facilities, bonus and pension schemes, and an active social and sports club.

BDH — Applications should be made in writing to: Miss G. A. Weston, Personnel Officer, BDH CHEMICALS LTD., Broom Road, Poole Dorset BH12 4NN

QUADRANT RECRUITMENT

OPERATIONS MANAGER NEW 2903

YORKSHIRE **to £5500**

Our client is seeking an unusually capable operations person to set up and run two new ICL 2903 installations that will eventually have an extensive communications network attached. The main installation, where the position is based, is between Huddersfield and Sheffield.

It is likely that the successful applicant will be experienced on ICL equipment and will have worked in a communications environment. Previous management or shift leading experience will be necessary, together with the ability to grow with the use of data processing within the company.

Salary and conditions of service are excellent, and assistance with relocation to this delightful rural location will be given if necessary.

Bank House, Queen Street, Sheffield, S1 1UF.
Tel: Sheffield (0742) 738794.

COBOL PROGRAMMER

S.W. LONDON **TO £4,900**

A competent COBOL Programmer is required to work in our client's computer centre, which is conveniently located close to bus, main line and tube services. ICL 1902T hardware is operated under GEORGE II. A variety of financial and accounting systems are run using both batch and on-line enquiry techniques.

Work will be in project groups which are structured to allow personal progression. Knowledge of PLAN, GEORGE II, or FILETAB would be valuable but the essential requirement is the ability to produce working COBOL programs within realistic schedules. Training will be provided where necessary.

Benefits include — FLEXITIME, SEASON TICKET LOAN, PAID OVERTIME, EXCELLENT HOLIDAYS, COMPREHENSIVE PENSION. For 2 years' experience salary will be negotiable up to £4,900.

If you would like to join a small, professional yet friendly team, then telephone our CROYDON office or write quoting ref. CW66-7H.

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COMPUTER AND PROFESSIONAL PERSONNEL CONSULTANTS — CAPP ASSOCIATES LONDON AND MANCHESTER

Computer Programmer/Analyst

North Sea Oil-Aberdeen

Occidental, the operators for the Piper and Claymore North Sea oilfields, are committed to a continuing programme of expansion and development. Our small and highly skilled team of computer specialists play a significant role in providing technical and commercial data processing services to the entire operation.

The increase in these activities has created an opportunity for an experienced Programmer/Analyst who can take on the complete responsibility for various new technical applications, which range from helicopter scheduling to contour mapping. Candidates, male or female, should be familiar with time-sharing and data-base techniques and have had a minimum of four years' experience as a Computer Programmer.

Initiative and enthusiasm will be readily encouraged and our progressive approach to technical innovation guarantees a stimulating working atmosphere. A competitive salary is offered along with the benefits expected from a major oil company.

If you believe you match our requirements and are seeking a challenging and rewarding career, please write with brief career details to:

Mrs. Ann Reynolds, Occidental of Scotland Inc., 127 Causewayend, Aberdeen AB2 3TP.

OXY

Berlei plans new ICL 2950

Analyst/Programmers Programmers

Slough

Berlei is one of the industry leaders in the manufacture and marketing of foundation garments and swimwear.

They have a requirement for development staff at all levels, who can accept the challenge of developing new systems on ICL's most recently announced machine, the 2950 using TP and IDMS under VME/K.

The company has long recognised the benefits of ON-LINE systems (they have three Driver Programmes under Comms. Manager on their ICL 1902T) and the delivery of the 2950 in August 1978 is in accordance with their objective to put all major systems and files ON-LINE throughout the company and its seven factories.

Berlei require you to have a minimum of 2 years' programming experience using COBOL on any machine; some exposure to analysis would be welcome but by no means essential. Above all, if you really wish to be involved and to contribute to the well-being of your business, at the forefront of software design, join Berlei and its ICL 2950.

Salary will not present a problem to the right applicants and training will be provided as necessary.

In the first instance please contact John De La Mere on 01-549 3212 for further details.

Future Systems Data Base Real Time Distributed Processing

Cobol programmers are required in the West End. One of the most interesting and rewarding openings for mainframe programmers in recent years has arisen.

A major international company is on the threshold of a five-year development programme and wishes to recruit the first phase of its programming intake.

Already an existing IBM user, they will have to upgrade their 370 to cope with their Data base, Real time, and Distributed Processing systems development.

This ground floor opportunity is open to applicants with a proven record of Cobol programming on any machine.

Competent COBOL programmers will not find the salary a problem and will enjoy the benefits of working for a prestige company with technical training, career progression into analysis and management in addition to probable overseas travel to consult with users.

To secure an interview, please telephone 01-549 3212 and speak to Clive Hartrup.

Sussex Coast Cobol Programmers c. £4800

Are you tired of City life? Would you like a place by the sea? If so a bracing atmosphere awaits you in the south. You could join a development team in an interesting and stimulating environment. You can use your COBOL knowledge in the development of commercial and manufacturing systems.

Our client is embarking upon a significant upgrading of its D.P. facilities including an orientation towards management information systems. They offer excellent benefits and prospects as part of a progressive group, including relocation assistance where appropriate and a profit sharing bonus scheme.

Ring Stella Mitchell immediately to arrange your interview.

CCC

Computing Services Association

KINGSTON: 44 Wood Street, Kingston upon Thames, Surrey, England. Telephone 01-549 3212 (24 hours) Telex 27950
DUBLIN: Canberra House, 24 Lower Leeson Street, Dublin 2. Telephone 762170/762186/785912 Telex 30742
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Computer Appointments

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JUNIOR ANALYSTS/SYSTEMS ANALYSTS: These positions offer the opportunity to move into support and development areas of batch and on-line applications. If you are familiar with an IBM environment and are interested in the latest developments of on-line and database techniques, this could be the opportunity you have been waiting for

PROGRAMMERS: If you have been programming for the past 18 months, preferably in a commercial environment, and feel that you want to use your past training to progress rapidly in an expanding department, then our clients want to see you. You must have a knowledge of PL1, and OS/VS 1 would be an added advantage

The company currently uses IBM 370/148 and 145 mainframes with on-line database facilities, in a friendly and professional environment. Their modern premises are situated in the most picturesque rural surroundings in an easily accessible area of Surrey. If you feel that the time has come for you to enter a dynamic environment, where with the right training you can make a positive contribution to the company's expansion, then ring us for a preliminary discussion on 01-439 6299 quoting ref. no. W.G 972.

Computer Appointments

IF YOU HAVE REAL TIME EXPERIENCE MAKE A FRESH START IN 1978!

SOFTWARE ENGINEERS — CIRCA £6,000
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ENGINEER PROGRAMMERS — CIRCA £4,000

LONDON AREA

OUR CLIENT, A LEADING ELECTRONICS COMPANY WITH GLOBAL INTERESTS IS SEEKING PROFESSIONALS TO TAKE PART IN A MULTI-MILLION POUND PROJECT OF THE FUTURE.

SOFTWARE ENGINEERS — Preferably graduates in electronic engineering, with a sound knowledge of hardware and experience of writing software, probably in ASSEMBLER.

SYSTEMS PROGRAMMERS — Recent graduates in electronic engineering, they will have one or two years' systems experience.

ENGINEER PROGRAMMERS — Recent graduates in electronic engineering and conversant with hareware, they should have one or two years' programming experience.

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OPERATIONAL RESEARCH IN GOVERNMENT

Head of New Computer Unit

Systems/Scientific Programmers

A new computer unit is being set up in Whitehall to give active assistance to operational research groups in the Civil Service Department and the Treasury tackling management problems which range from manpower planning to policy on public expenditure. The unit will advise OR scientists on the computing aspects of their work, and provide systems, programming and operating expertise.

Three appointments are to be made, the head of the unit and two programmers, one of whom will assist with systems design and one who will liaise with computer service bureaux. There are prospects of promotion at each level and a non-contributory pension scheme. Starting salary will depend on qualifications and experience.

HEAD OF UNIT

(Ref: SB/5/CB) Candidates (normally aged under 32) must have a good honours degree or equivalent, in a scientific/engineering subject. They must have at least 4 years' appropriate postgraduate experience and a wide appreciation of scientific programming.

Some knowledge of OR is required. Appointment as Senior Scientific Officer: £5170-£8780.

SYSTEMS PROGRAMMER

(Ref: SB/6/CB) Candidates (normally aged under 30) must have a good honours degree, or equivalent, in a scientific/engineering subject, and at least 2 years' appropriate postgraduate experience. They must have a knowledge of several programming languages and ability in systems design. Appointment as Higher Scientific Officer: £4230-£5440.

SCIENTIFIC PROGRAMMER

(Ref: SB/7/CB) Candidates (normally aged under 27) must have a good honours degree, or equivalent, in a scientific/engineering subject and a knowledge of several programming languages. Appointment as Scientific Officer: £3070-£4510.

For further details and an application form (to be returned by 19 December 1977) write to Civil Service Commission, Alencon Link, Basingstoke, Hants RG21 1JB, or telephone Basingstoke (0256) 68551 (answering service operates outside office hours).

Science Group CIVIL SERVICE

Please quote appropriate reference.

Computer Operators

(Shift Leaders Designate)

Keston, Kent

Seismograph Service is a geophysical contractor, heavily involved in the search for oil, gas and minerals. Our Well Survey Division, which has doubled in size over the past 3 years, uses mini computers to process geophysical data obtained from wells throughout the world. Currently we are looking for Computer Operators who have the potential to become Shift Leaders within a year.

The ideal candidates will have, apart from experience of operating in a scientific environment, 'O' level in Maths and/or Physics, and be aged over 21. Initial salaries, which include shift and overtime payments, will be up to £3,750 p.a. On promotion to Shift Leaders, earnings will be in the region of £5,500 p.a.

Benefits are in line with a modern progressive company and include a sports and social club and subsidised staff restaurant.

Please write or telephone for an application form to Bruce Stirling-Hamilton, Senior Personnel Officer, Seismograph Service (England) Limited, Holwood, Keston, Kent BR2 6HD. Tel: Farnborough (Kent) 53385. Applications are invited from men and women.

TRAINEE SYSTEMS PROGRAMMER — circa £4500. Surrey

You should have 2-3 years operational experience of IBM systems under DOS or preferably OS, be aged around 22/23 and possibly have been involved in a technical support role and have written some assembler programs. Ref 228

SYSTEMS ENGINEER — Negotiable Salary. France

Several years' experience of IBM DOS/VS also GRASP knowledge would be helpful minimum 5 O Levels and the ability to speak French fluently. Some systems programming and assembler language experience preferred. Ref 105

COBOL PROGRAMMER — to £5500 London, WC2

1 year's experience or more, together with knowledge of IBM DOS job control. The position offers involvement with all types of development applications, including SCREEN programs, possible travel to Europe in a consultancy capacity, and an opportunity to move into Systems Analysis. Ref 220

IBM OPERATIONS VACANCIES

SNR OP	155	OSVS1	3 shift City	c£5000	Ref 227
SNR OP	145	OSVS1	3 shift S. Hants	£4000	Ref. 219
S COR	135	DOS/VS	2 shift Essex	£4000	Ref. 221
SNR OP	135	DOS/VS	2 shift S E London	£4100	Ref 218
SNR OP	135	DOS/VS	3 shift City	£3800	Ref 218
OP	135	DOS/VS	3 shift N W London	£3000	Ref. 212
OP	135	DOS/VS	2 shift Essex	£3500	Ref. 221
OP	135	DOS/VS	3 shift W London	£3300	Ref 172
OP	138	OSVS1	2 shift Essex	£3500	Ref 230

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X•Calibur COMPUTER SERVICES

Computer Professionals —Training and Advice £6,000 Manchester

We have vacancies in our Training and Advisory Services Group for computer professionals to join our existing teams in Manchester.

Duties will comprise a mixture of tasks which include lecturing on computer training courses in UK and occasionally overseas, developing training resources including audio visual materials and providing professional advice to organisations on aspects of computer usage. Whilst the posts are Manchester based duties will involve considerable travel.

Candidates will have a degree or equivalent professional qualification, a minimum of 3 years experience in computing on a broad basis and preferably including both programming and systems work. Experience in either a lecturing or consulting role will be particularly valuable.

Starting salary: Up to £6000 in a range rising to £7340 (inclusive of supplements).

Conditions of service are excellent and include 25 days annual leave, 9 statutory holidays, contributory pension and life assurance schemes.

Please write with full details to Personnel Manager, The National Computing Centre Limited, Oxford Road, Manchester M1 7ED, (or telephone 061 228 6333 for application form).

NCC The National Computing Centre

System Software Controller

There is a vacancy at the Harwell Laboratory for a System Software Controller who will be responsible for the installation and maintenance of the system software of an IBM 370/168 computer. He or she will be concerned with the generation of operating system software and the control and testing of additions and changes to the software.

Applicants should have had experience of multi-programming operating systems, and those with a knowledge of MVS will have an advantage. Alternatively, a working background of computer operations in the widest sense, with practical knowledge of systems software, could be acceptable.

Starting salary will be according to age and qualifications within the scale £2020 per annum at age 18 to £3165 pa at age 29 (highest starting pay), rising by annual increments to £3930. Pay supplements of £313.20 and of 5% of salary (subject to a maximum of £208.80 pa) are additional.

Phone or write for an application form to:

Personnel Department 'B'
A.E.R.E., Harwell, Didcot, Oxon OX11 0RA
Tel. Abingdon 24141 (STD 0235) Ext. 2059.

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Candidates must have sufficient systems and programming knowledge to understand the technical content of the bureau service, and must already be experienced salesmen. Ideally they will already have sold for a bureau, or have had experience in selling for a computer manufacturer. The sales area to be covered is in South London and Southern Home Counties.

Ref: 632CW/Neville John

● London

Consultants & Programmers

£4,000-£7,500

SYSTEM TEN & SYSTEM 1500

Excellent opportunities exist with an expanding software house for experienced ICL SYSTEM TEN or SYSTEM 1500 personnel. Various Real Time projects, based in London and other UK sites, include a Building Society and a Hospital application as well as a software development project for communication systems network. The positions are based in West London or Reading. Opportunities to work on overseas projects also exist.

We are interested in ASSEMBLER programmers with several years experience, including a minimum of one year on SYSTEM TEN and/or SYSTEM 1500. We will also consider applicants with only two years' experience in COBOL and ASSEMBLER on other machines.

Senior candidates should have been involved in the successful implementation of a number of projects and must be able to assume a supervisory function as Project Manager or Team Leader.

Ref: 584/CW/Renée Nute

Salaries in excess of the maximum quoted above are negotiable for exceptional candidates able to justify higher salary expectation

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The starting salary will be negotiable and depend on previous experience. A three shift, 5-day week system is involved for which a 20% shift allowance will be paid on top of the salary. These vacancies offer an opportunity to join a rapidly expanding organisation.

Ref: 102/CW/Sandy Lloyd

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Of particular interest is assembler experience on PDP-11, Nova Hewlett-Packard, Honeywell Series 16, Intel or Computer Automation hardware, but any Real-time mini or micro experience would also be of interest. Preference is for a good academic background and for many positions some mobility could be required. Salaries in excess of the figures quoted could be negotiated for exceptionally well qualified applicants.

Ref: 3011/CW/Sharon Matthewe.

To apply for any of the above positions or for further information, please telephone the Consultant concerned during working hours on 01-242 9366, or write to the above address. If it would be more convenient to telephone in the evening, the telephone numbers are: Neville John — Farnborough (Kent) (66) 52017. Renée Nute — 01-874 6372. Sharon Matthews — Billericay (02774) 22351. Sandy Lloyd — 01-691 5168

Members of Computing Services Association

SYSTEMS MANAGER

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Responsible to the Financial Director, the Systems Manager will recommend the resources required to meet the Company's systems needs, develop and maintain all corporate systems, provide appropriate computer programmes and supervise the operation of the D.P. facilities.

Probably in late twenties, the Manager (male/female) will have a depth of experience in all aspects of D.P. and at least 4 years experience of programming in Cobol.

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Leeds, £3,500 - £4,500

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SYSTEMS/PROGRAMMING/TRAINING OPPORTUNITIES

Due to a planned program of expansion, our Clients, a well established and respected Computer Services Company seek additional computer professionals to join their young dynamic department.

SYSTEMS & PROGRAMMING MANAGER Salary:- c. £6,000

The ideal applicant should have a thorough grounding in systems and programming, preferably gained on a minimum of 2 manufacturers hardware. He/she will take responsibility for supervising the systems and programming department and participate in pre sales support, quotations and technical troubleshooting.

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For this position our clients require systems analysts with a minimum of 3 years' data processing experience preferably gained on more than one manufacturer's equipment. The successful candidates should be well versed in commercial computing techniques and be flexible enough to tackle a wide variety of projects.

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Programmers with a minimum of 3 years' experience, preferably with more than one commercial manufacturer, are required by our clients. The work will be of a project orientated nature and cover a wide variety of applications.

TRAINING/LECTURING POSITIONS Salary:- c. £5,250

Our clients also seek a systems analyst and a person with an operations and programming background to assist in the development and presentation of formal training courses, primarily to new recruits entering the industry but also advanced courses to experienced students.

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LONDON 01-935 0671 FREEPOST 6
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SCR

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Viking Gas Terminal-Lincolnshire

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The work will involve the review of computer application, both onshore and offshore, in the Viking Organisation to maintain and improve current systems of operation. This will also entail the scheduling and co-ordination of installation and maintenance of automation hardware, including computer telemetry and communications. Some programming/analysis work is involved and user liaison activity forms a significant part of the responsibilities.

The ideal candidate, male or female, will be aged 28-40, possess an advanced qualification in computer studies, or have undertaken a technical apprenticeship with considerable computer exposure. He or she will have 7+ years experience, at least 2 of which should have been in a supervisory role as project team leader. Experience of process control is essential (preferably in a real time environment) and of project work, from conception to implementation, is desirable. FORTRAN experience, and a second language (preferably ASSEMBLER) ideally using Hewlett Packard equipment and exposure to digital and analogue supervisory systems is essential.

Career prospects within our world-wide natural resources operations are excellent and varied. A very competitive salary will be offered, and overall terms and conditions of employment are excellent including a non-contributory pension plan and assistance with relocation expenses. Please telephone or write for an application form to:-

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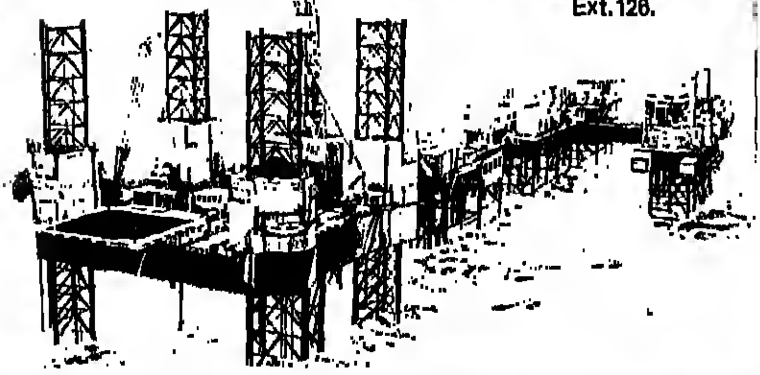

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Cross Computer Group is a long established systems house and service bureau, which provides consultancy, systems design, programming and processing services to clients both in the U.K. and overseas. The Company believes in 'personal service' and pursues this approach with both clients and staff. Thus, a friendly working environment is offered in pleasant offices close to Wimbledon Station. Main line and tube services make travelling easy.

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We have a mature installation with systems covering most facets of a competitive commercial environment. There is a large on-line system linking remote sites via VDUs and we believe that the main thrust of our future development will continue to be within the transaction processing field.

Analysts interested to know more should telephone Brian Corner, Manager Computer Services, on Watford 44381.

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Systems Analysts
to £5000 + benefits

To join project teams developing a wide variety of applications using the latest techniques including database and teleprocessing. The ability to deal with users on the one hand and experienced programmers on the other means that the successful candidates will enjoy a high level of involvement and will need to display a professional approach in a professional environment.

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With 1-4 years programming experience, to work primarily in PL/1 (we are prepared to retrain successful candidates using comprehensive training facilities including the latest multi-media techniques). Programs are currently developed using modular techniques and structured programming is under active consideration.

Benefits include: • Mortgage facilities at low interest rates • Relocation expenses • Non-contributory pension, widows pension and life assurance schemes • Flexible working hours • Paid overtime • Security of permanent employment in a long-term career with good promotion prospects • Excellent sports and social facilities • Easy access to the Lake District and Yorkshire Dales.

Are you interested? If so ring me, up to 8.00 p.m. each weekday (reverse charges) or write giving career details under 'Private and Confidential' cover to:
Alan Foort, Data Processing Department, Guardian Royal Exchange Assurance Limited, [illegible] Ballam Road, Lytham St. Annes, Lancashire [illegible]
Telephone Lytham (0253) 738701.

MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

SOFTWARE & APPLICATIONS COBOL PROGRAMMERS

MIDDX/SURREY BORDER £5500

A SENIOR PROGRAMMER is required to join a recently formed Programming Team to develop On-line applications for this busy manufacturing Company. The Team, led by a Chief Programmer, will initially develop the software architecture for the new ICL computer; developing macros and familiarizing themselves with On-Line programming techniques. Several major systems are to be developed in the coming year permitting the Senior Programmer the opportunity of playing a key role in the design and implementation of On-line programs.

Although Programmers are required at both Senior and Junior levels, our Client is keen to recruit an experienced SENIOR PROGRAMMER in the first instance with at least three years' experience using COBOL.

The Company offers a pleasant working environment with favourable terms of employment.

SENIOR ANALYST/PROGRAMMERS

KENT TO £6000

The computing division of a major company, located in a pleasant area of the Kent countryside, is at present increasing their computing power and have several vacancies for experienced personnel.

Projects are varied and interesting and will include development of database systems. The company offer excellent prospects for promotion and general career progression, coupled with good training in a technically advanced and forward-looking department.

If you feel that such a position would afford you the opportunity to further your career and you are able to offer a COBOL programming background together with involvement in analysis, we would be happy to tell you more about the positions open to you.

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A major Service Company with interests in a broad spectrum of industry wishes to strengthen their systems team with the appointment of two Analysts who will initially aid the design of on-line systems.

The positions will firstly entail design involvement followed by leading development teams through to systems implementation in early 1979. The Company is installing dual ICL 2960 processors and has a country-wide network linking branch offices to their data centre in Fulham.

This is an outstanding opportunity for Analysts to gain large on-line systems experience as all necessary training will be provided for the right candidates.

Usual large company benefits are enhanced by an excellent career development plan which allows for rapid progression through analysis to Project Management and Consultancy within an expanding environment.

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MIDDX/SURREY BORDER £6000

A Systems Analyst is required to develop an On-line Production Control System for a busy engineering factory. The Company has recently taken delivery of a new ICL Computer and is in the process of building a small Systems Team of capable Analysts to assist with the development of an agreed Systems Plan. Reporting to the Senior Analyst, the successful applicant will take responsibility for the design and implementation of the System and will go on to develop a Work-In-Progress System.

Applicants should have AT LEAST TWO YEARS' ANALYSIS experience and have a knowledge of Production/Stock Control type Systems. Although On-line experience is not required a keen interest in computer issues is desirable. The Company offers a pleasant working environment with favourable terms of employment.

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COMMUNICATIONS NETWORKING PROGRAMMERS AND DESIGNERS

Applicants with online message switching networking experience with knowledge of minicomputers and systems design. Vacancies exist in UK, Benelux, Scandinavia, France and Germany.

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Programmers, Analysts and Consultants conversant with IBM or NCR database systems in banking or insurance finance environment. Vacancies exist in Middle East, Belgium and London. Ref: MS 11/16.

TELEPROCESSING, DATABASE CONSULTANTS AND PROGRAMMERS

Personnel with working knowledge of IBM CICS and IMS, CINCOM'S ENVIRON and TOTAL, ALTERGO's SHADOW, TPS 1900, CORTEZ or ADABAS and ROBOT. Vacancies exist in France, Benelux and UK. French-speaking applicants are required urgently. Ref: MS 11/17.

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Designers and experienced systems sales engineers familiar with PDP 8 and PDP 11 also knowledge of Microprocessor applications in industrial automation control systems. Vacancies exist in UK, Benelux and Scandinavia. Ref: MS 11/18.

Salaries and Conditions for All Posts Are Excellent

Please phone or write now to: John Staley

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Computing Services Association

SCR

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Training in modern techniques will be given where required. This is a well organised environment, working to high standards on large scale systems.

We have been retained by a major organisation to recruit for the posts itemised, and would welcome an opportunity to discuss the openings with you. Please ring us, quoting the appropriate reference, or leave a message on our answering machine after hours.

Tel: 01-637 5796

EDP Systems
52-53 Margaret Street
London W1N 7FF

Appointment	Salary Up To	Job	Requirements
DATABASE SPECIALIST	£7500	To lead Database Team (5) as the senior advisor/planner in this field at the installation, with responsibility for major on-line applications, using ICL 2980.	Upwards of six years' computing experience, including database design and implementation, plus team leadership ability (Ref. [illegible])
SNR. SYSTEMS ANALYST	£6250	Analysis work on major systems, including feasibility studies, proposals, implementation and user presentations, both ICL 1900 and 2980.	Upwards of five years' D.P. experience, including significant systems analysis and design, plus [illegible] knowledge (Ref. [illegible])
ASST. CHIEF PROGRAMMER	£6250	To lead a team designing and implementing an on-line system on ICL 2980, from design through to implementation, using database facilities.	Upwards of four years' programming experience on ANY MAINFRAME, knowledge of a modern operating system, plus leadership ability. (Ref. [illegible])
SOFTWARE PROGRAMMERS	£5200	To work in small team of user facilities and support. ICL 2980, including changes to VME/B operating system, and MAC, TP and IOMS software.	2-3 years' programming experience on ANY MAINFRAME, including a large machine operating system and special purpose software. (Ref. [illegible])
APPLICATIONS PROGRAMMERS	£5200	To work initially on ICL 1900 in COBOL (possibly with some PLAN), under George II+ and to transfer in due course to COBOL on 2980. Applications include transaction processing and the use of databases	2-3 years' programming experience, including substantial COBOL, on ANY MAINFRAME. A working knowledge of PLAN would be valuable. (Ref. [illegible])

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Stimulation, variety, an invigorating work environment, new problems to tackle, rewards to match your ability—that is our offer. Marcol are fairly new to the computer software consultancy scene in Britain but already we are well entrenched. Formed just five years ago, our aggressive, dynamic, indefatigable approach has earned us a sizeable share of the market and we are now poised for further expansion. We consider ourselves the best in the field—and with reason. People are our major asset and when we recruit we have the resources and opportunities to attract the best.

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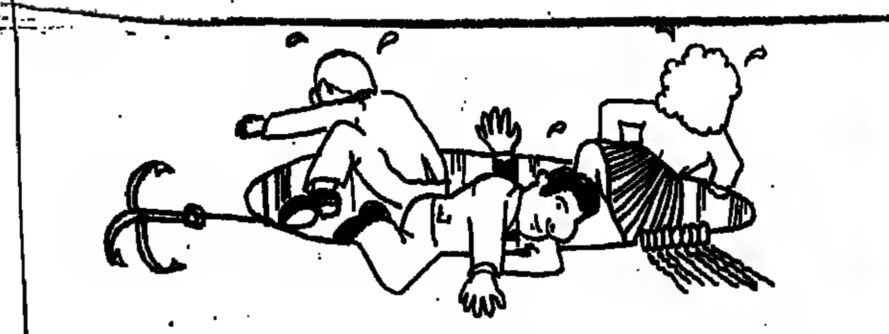

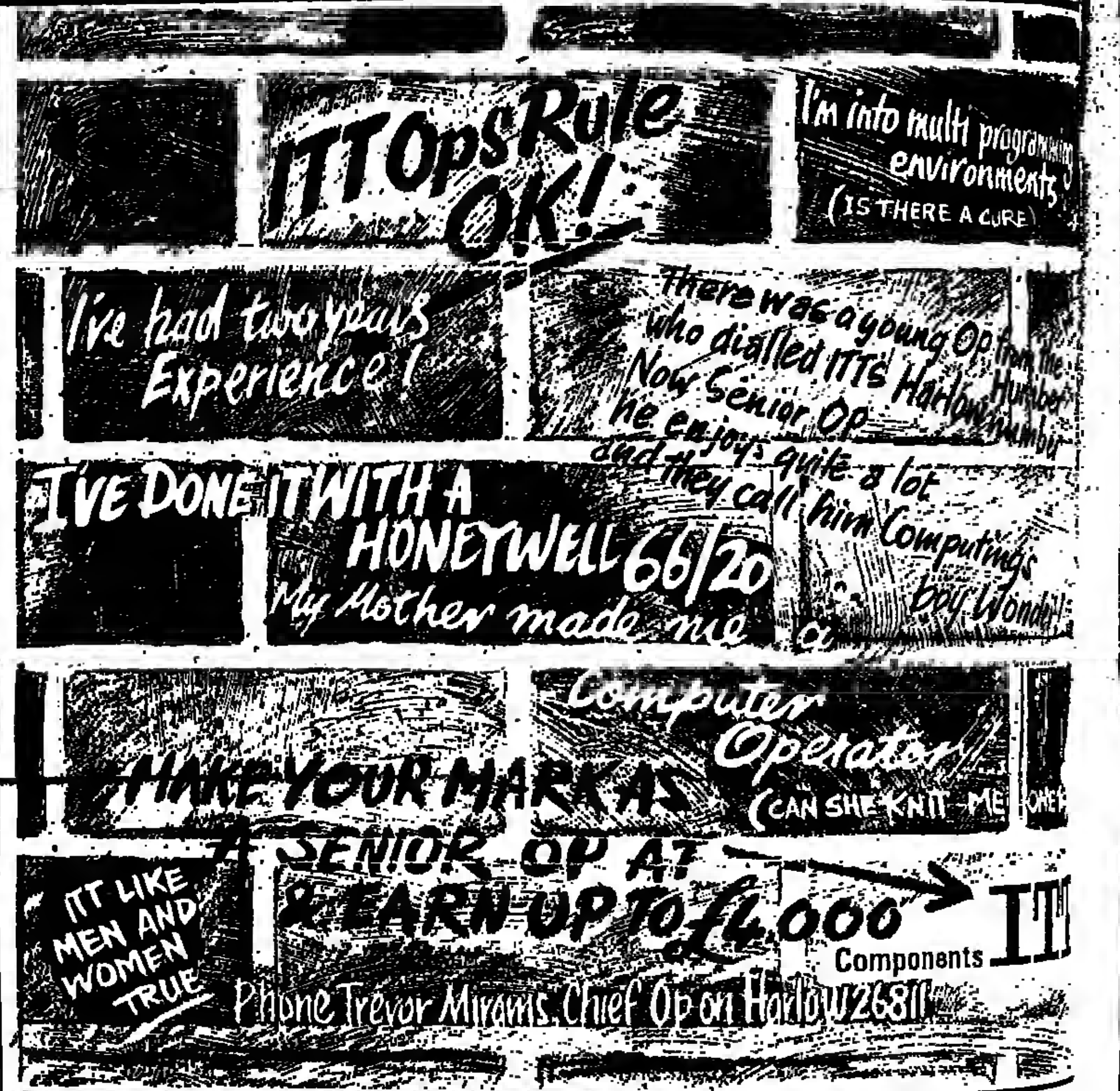

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Fabulous opportunity to leap ahead by joining major U.S. group [illegible] in the world marketing a much sought-after Mini Computer (over 5,000 systems installed in 1976). Your market will consist mainly of large potential end users, where you can derive maximum sales from big orders, thereby earning an income in excess of £10,000. You will need to be confident and ambitious with sales experience living in London and Home Counties. Start basic min. £6,000 + Ohio Cortina car. Call now! Ref SS1019

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An individual is required to assist in the development then to continue the management of a computer [illegible] system presently based on a PDP-8 [illegible]. A degree with strong mathematics is required, plus ability to design and programme complete systems. The job is suitable for somebody who wishes to go beyond the purely technical aspects of computer problems. Please apply in writing to A. J. Clark, [illegible] International Limited, 21 Mincing Lane, London EC[illegible]

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TSB Trust Company Limited is the Life Insurance and Unit Trust Company of the Trustee Savings Banks and is situated in a modern office in Andover Town Centre.

The Company is taking delivery of a B3800 configuration early in 1978. This equipment will provide processing facilities for an advanced integrated system with real time characteristics. System development and implementation will take place over several years, resources being provided by an outside software house and by an in-house development team.

Current in-depth experience in at least two of the following fields is mandatory:—

Real time applications
Data Base technology
Burroughs Medium Systems

This is an unusual opportunity to join a long-term project of outstanding interest at an early stage of development.

Applications should be addressed to:

Angela Chris, TSB Trust Company Limited,
P.O. Box 3, White Bear House,
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Hants. SP10 1PG.

Applications should arrive not later than 2nd December, 1977.

TSB

Communications Technicians

Data networks c. £4000

Atkins Computing have become established as one of the leading timesharing and remote access service companies in the UK with several regional branches and a link into Europe. As part of our planned growth we need a Communications Technician to assist in the development and maintenance of our computer based data communications network. The person appointed should be able to act on his/her own initiative and responsibilities will include network supervision, fault diagnosis, troubleshooting and first line repairs by board replacement.

Candidates should preferably have some experience of Digital systems and a relevant technical qualification such as City & Guilds Telecommunications.

We offer progressive employee benefits, pleasant working conditions and relocation assistance where [illegible]

Interested? Th[illegible] Alan [illegible] Comp[illegible] Limited, Wo[illegible] Ashley Road, [illegible]

Telephone [illegible]

London

System Support Analysts

Up to £5,500
+ Car, Bonus, Benefits

Our clients, one of the World's leading manufacturers of Computers, are now recruiting to meet a continued expansion within the U.K. They are particularly looking for support staff to back up their dynamic sales division marketing technically advanced stand alone computers, mini-computers and teleprocessing equipment.

We have been retained to look for ambitious men or women with the following qualifications:

* Suitable manner, demeanour and personality to work in a sales environment.
* In-depth software experience, preferably in ASSEMBLER languages/COBOL/FORTRAN, and knowledge of operating systems.
* General hardware knowledge.
* High degree of personal motivation and initiative.
* Preferably a Degree, HNC or equivalent.

Desirable, but not essential, additional experience would be that you have worked with a computer manufacturer in a systems support role, as would experience in such areas as data base, data communications, etc.

These are exciting and rewarding opportunities to join a fast growing company. Our Clients not only offer the usual benefits associated with big organisations but also have an extremely attractive bonus scheme.

For further information please contact the Advising Consultant quoting the appropriate reference number CW/411/1.

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Hutton Executive Selection Limited are pleased to inform you that two of their Directors will be in the Netherlands during the week beginning the 5th December to discuss with several leading companies the recruitment of permanent and contract staff from Great Britain.

If you are a Computer Professional and are seeking a position in Holland, then please contact our advising Director immediately who will be pleased to give you further information.

THIS SERVICE IS COMPLETELY FREE TO ALL OUR CANDIDATES, PLEASE TELEPHONE PROMPTLY. Reference number CW/411/2.

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SOUTH EAST THAMES REGIONAL HEALTH AUTHORITY

Systems Analysts and Programmers

Salaries on scales ranging from £4408-£6487

At whatever level you join, the variety of work, the ambitious schemes afoot, the salaries, the freedom to use initiative, and the opportunities to go places, together add up to some of the most exceptional jobs in this field. The location is easily accessible by bus, tube and train, plus free car parking facilities.

The Regional Computer Centre provides computer services for Health Authorities in South East England dealing with everything from payroll to supplies to monitoring child health care, and employs about 150 people. The mainframe computer is an ICL 1904S (128K) with discs, tapes, printers, communications processor and associated peripherals.

For Systems Analysts the work involves going out frequently around the Region, meeting people, accumulating considerable knowledge of health service activities. After this fact finding stage you will often conduct feasibility studies then see the project through to implementation and monitor post implementation performance. If you have the ability there are avenues for progress to top level appointments.

For Programmers close liaison with your project team provides an added stimulus plus the interest of advanced programming techniques. There is opportunity for promotion to more senior grades or to Systems Analyst work.

A particularly interesting project which the Centre is undertaking is a joint experiment which concerns evaluating three major systems applications in Tunbridge Wells and Bromley as well as comparing the performance of two different manufacturers' equipment. Maybe your background makes you an ideal candidate to become one of the evaluation team.

To find out more, telephone or write for an application form to.

SET

Regional Computer Services Officer
South East Thames Regional
Computer Centre
Brook Drive
London SE11 4TH
01-735 4881 Ext. 36

Closing date for applications 9th December, 1977.

Operators to Shift Leaders £2,000-£4,000 (incl.)

LONDON & HOME COUNTIES

We have many vacancies covering all types of machines and locations. Some firms will retrain from one manufacturer to another. Remember these positions are for shift working only. Hurry while stocks last. CW 47/1, Patricia.

Mini Computer Programmers to £6,950

U K

Your experience is required now. A very large number of vacancies are registered where a knowledge of Assembler or communications experience is essential (VRC programmers would also be considered). Opportunities exist in S.W., N.W. or W. London, Surrey, Herts and Manchester in this exciting and rewarding field. There has also been registered some overseas posts to people with 5 or more years in mini computers. CW 47/2, Michael.

Systems Consultants £6,000-£9,500

CENTRAL LONDON

Seven large well-established consultancies wish to recruit systems people with all-round experience on third generation equipment and the right personality to deal with clients who require a first rate service. Technical communications consultants are also required where in-depth implementation experience of IBM or ICL T/P message switching networks, etc., are essential. Excellent fringe benefits and prospects. CW 47/3, Michael.

RPG II Programmers £4,000-£6,500 +

LONDON & H. COUNTIES

We now have eight commercial companies who have vacancies for RPGII programmers and Analyst Programmers. Jobs exist in C. London, W. London, Middx, High Wycombe, Croydon and in Dorset. Most firms offer LV's, 4 weeks' holidays, etc. CW 47/4, Aesene.

Successful Salesmen to £12K quota earnings

U K

We now have ten different firms for both hardware and systems only companies who are anxious to meet successful salesmen in the industry. They must have previous relevant small systems experience (some VRCs will be considered). All firms have bonus schemes and cars or car allowance. Most positions in S.E. England, but 2 in Midlands. CW 47/5, Michael.

Time Sharing Programmers to £6,000

C. LONDON

If you have had time sharing experience involving the use of FORTRAN, BASIC or ASSEMBLER, then we have four nationally known companies who would offer you an exciting job in pre- or post-sales support. Some offer generous bonus schemes. CW 47/6, Michael.

Technical Authors W. London & Herts. £5,000

Four manufacturing companies are looking for competent technical writers with mini or mainframe experience. CW 47/7, Michael.

Contract Programmers to £190 p.w. U.K.

Immediate requirements for IBM RPG II & IBM COBOL under DOS or OS for C. London. PL/1, OS or CICS, PDP/11 or good IMS for various locations for three months plus. Also IBM vacancies in Europe. Ask for the Contracts Officer on 01-995 2230. CW 47/8, Michael.

UCG

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SYSTEMS PROGRAMMERS ANALYST/PROGRAMMERS

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Following sure and steady expansion we are currently recruiting efficient and mature personnel to fill interesting and demanding assignments in the UK and the Americas. There are a range of opportunities from one year's experience upward, with details of experience to: Alimand Management Services Ltd., 250 Brompton Road, London SW3 2AT.

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ajk Look Forward to a Prosperous New Year with AJK

The AJK Group of Companies is currently recruiting staff for its planned expansion in 1978. Well established in the Computer Services field, we require ambitious people who are interested in a challenging and well paid career with a forward looking company. Our plans include opening new offices in the U.K. and entering the European market. If you have the necessary qualifications for any of the following positions contact us now, and make an appointment for a HAPPY NEW YEAR.

Sales Executives Ref: AA

We are looking for experienced sales people to assist our expansion in the freelance market. Previous experience preferable, but not essential if the right attitude and approach can be demonstrated. A basic salary plus commission and other fringe benefits will be paid.

Location: London and Birmingham. c £10,000

Personnel Consultants Ref: SM

Applicants should have at least three years experience in the D.P. industry with a good knowledge of the job market. Previous experience in the recruitment field desirable but more important is an ability to communicate with people at all levels, and achieve pre-determined targets. Good appearance and pleasant personality essential.

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Interviewers Ref: AL

Our sister company AJK Recruitment, requires experienced interviewers, preferably in the D.P. field. Ability to communicate with people and willingness to take responsibility essential.

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AJK Consultants Limited
26 Chilworth Street, London W2 6DT
01-402 0933
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University of London Computer Centre

Systems Programmers

(For Telecommunications and Quality Assurance)

Graphics Applications Programmer

The University of London Computer Centre is a regional computer centre which provides computing service to London, South Eastern and South Western Universities on Control Data 7600, 6600, 6400 and Cyber 72 computers.

The Centre supports more than 60 remote batch terminals and is part of the University of London network METSONET. Graphic facilities presently include CalComp 1670 Microfilm Recorder (16mm and 35mm) and 2100 Microfilm system, with in-house film processing.

Applications are invited for the following posts

Telecommunications Posts (Ref 601)

Two Programmer/Analysts are required to join a team engaged in the design, improvement and maintenance of telecommunications systems on mainframe and minicomputers. The development programme includes providing support for new protocols, higher line speeds and enhancements to METSONET. Applicants should have sound experience of assembly language programming and experience with telecommunications software would be an advantage.

Quality Assurance Post (Ref QA1)

One Programmer/Analyst is required to join the Quality Assurance Unit which is responsible for the integration and testing of the software and for monitoring the quality of service. Applicants should have at least one years experience in systems programming.

Graphics Post (Ref U84)

One Programmer/Analyst to assist with the maintenance and provision of graphics software. The applicant should have an interest in all aspects of computer graphics — both batch and interactive — and the ability to develop original ideas. A sound knowledge of Fortran is required, while relevant experience would be an advantage.

Salaries for the posts above will be at appropriate points on the following academically related scales, which are under review

Telecommunications Posts £2027 to £5627 (+£450 London Allowance) QA and Graphics Posts £2927 to £4811 (+ £450 London Allowance)

Leave entitlement is 6 weeks per year

Further details and application forms (returnable by 12 December) are available by phoning Jean Cording on 01-405 8400 extension 247 or by writing to the Secretary, ULCC 20 Guildford Street, WC1

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Operator
International Oil Company require an operator with 2 years' experience on any medium to large installation. Two shift system. Free lunches.
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£3500

Operations Supervisor
Company needs an Operations Supervisor with 3 years' experience for ICL 2900. Will consider 1900 experience. Staff canteen, free pension scheme, 4 weeks' holiday.
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£5000

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Company require an operator with eighteen months' experience of ICL 1900 GII. Four shift system.
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£3300 + Bonus

Operator
Two years' plus experience of ICL 1900 GII, with knowledge of MACRO writing secures this operating position. They also give L/Va and a meal allowance. Two shifts.
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IBM 370/DOS, POWER, CICS, experience. Self motivation and an ability to work by oneself are important qualifications. Two shift system.
E.C.3
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Do you have IBM 370/135 DOS/POWER/VS experience? If so this company needs you for an operating position. T.P. experience is essential also JCL. Regular overtime.
W.1
£4000

Mini-Operator
Mini computer operator with Accounts experience preferred for shipping company. This is a senior position. Days only.
E.C.3
£3500

Shift Leader
A shift leader with 3 years' ICL 1900 GII experience. Must be willing to work 3 shifts.
SURREY
£3800-£4000 aae

Above are just a selection of vacancies we have available

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for a major computer function — with 90 staff and a budget of £1.2m p.a.

c.£9000

Essential qualities required are outstanding managerial skills, particularly the ability to communicate at all levels, to motivate staff and to produce results. You will be accountable to the Director of Management Services for planning and providing an efficient and cost-effective data processing service using a Univac 1108.

Westminster City Council employs nearly 8,000 people, has a rate income of £200m and provides a wide range of services including housing, social services, town planning, libraries, environmental health and consumer protection. First-class data processing facilities are vital to support the Council's administration. A key part of your role will be to identify the organisation's computer requirements and to provide the technical capacity to meet them.

Many of the Council's activities are based on properties within its boundaries and a property information system, co-ordinating data used by several departments, is planned. This project will provide a challenging range of technical problems involving the use of terminals and data base techniques.

Men and women who can offer the experience and personal attributes we need are invited to write briefly, giving enough information to justify a preliminary interview, to:—

Clive Bate, Director of Management Services (MS28)
Westminster City Council
PO Box 240, Victoria Street, London, SW1E 6OP

Further details will be sent to invited applicants.

MERSEYSIDE

OPPORTUNITIES FOR TECHNICAL & SALES INDIVIDUALS

Our Clients, a well-established and respected Computer Services Company based in Merseyside, seek 2 people to augment their marketing team.

SALES EXECUTIVE — Salary:- c. £5,000 plus bonus, plus car.

This is a superb opportunity for a salesman with data processing experience to sell software services within Great Britain and possibly the European market place. He/she should ideally be based within the Merseyside area and be prepared to travel extensively throughout Great Britain developing the client base.

Our Clients will offer the successful candidate superb technical resources and a respected name within the industry.

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This is an ideal opportunity for a Programmer or Systems Analyst to move into the stimulating challenging environment of marketing. The successful candidate will take responsibility for all promotions/publicity for an expanding Computer Services Company. You should ideally have a sound computing background combined with a flair to communicate both verbally and via the media. Responsibilities will include: press releases, advertising, presentations and brochures.

Our clients offer excellent terms and conditions of employment including: pension and the excitement of working for a fast growing young company.

Initial interviews will be held in either Liverpool or Manchester.

CONTACT: DAVID WADE on 061-833 0678 REF. NO CW/11/25

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Computing Services Association

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System Co-ordinators real time system to £4,500

These are new positions within the System Control function which is responsible for ensuring maximum availability and integrity of a large Real Time systems.

Candidates should have:

- Real Time or Terminal Network Control experience.
- U.1100 series hardware or software knowledge preferred.
- We pay 10% shift allowance for 2 shifts.

Computer Operators univac 1106 to £4,200

Additional Computer Operators are required for our U.1106 which will control a Real Time terminal network on a pilot system, ultimately expanding to a nationwide network.

Candidates should have:

- 12 - 18 months computer operating experience.
- U.1100 series or Real Time knowledge is an advantage.
- We pay 20% shift allowance for 3 shifts.

- Both these positions are based at our new computer centre in Halifax, West Yorkshire.
- Generous relocation expenses will be paid where applicable.

Write or phone Tina Black at:
Provident Management Services Limited
Colonnade, Sunbridge Road, Bradford, West Yorkshire, BD1 2LQ.
Telephone (0274) 33321 Ext. 231

NCR OPERATORS (2 Shift)

A NEW ENVIRONMENT

NORTH LONDON **to £3900**

A leading manufacturer of equipment for the Print industry winning several Queen's Awards for Industry, (in the export market), now requires OPERATORS to join their friendly team running a Century 75. There will be a complete CHANGE OF MAINFRAME in the Summer of 1978 coupled with a move to a NEW COMPUTER SUITE and the introduction of a TP NETWORK.

It is envisaged that the successful applicants will have 12-18 months experience on NCR equipment and can show the initiative and responsibility to become an integral part of the organisation.

The installation is easily accessible by public transport and a holiday bonus is paid.

Ref: RJ.229.

D.P. RECRUITMENT LIMITED
Kent House, 87 Regent Street, London W1R 7HF
Tel: 01-437 2062/3/4 (24-HOUR ANSAPHONE)
Computing Services Association

RPG II, Cobol Assembler Consultant Programmers to £7,000

Banking and Insurance Systems

Experienced programmers are required to work with programming teams involved in a variety of Banking and Insurance systems. Applicants must demonstrate that they have a good understanding of the language and show a desire to grow in a fast moving environment.

Opportunities are available to work on a variety of machines including System 3, System 32, System 34 and Series 1.

These positions provide the chance to develop a rewarding career in the challenging environment of professional consultancy.

Fringe benefits include ■ Profit Sharing Schemes ■ Attractive Pension/Life Assurance Provision ■ Sickness Scheme ■ 4 Weeks Holiday Per Annum ■ LV's.

To discuss these positions contact Brian Cudby on 01-405 8955.

BIS Software Limited
55-56 Lincoln's Inn Fields
London WC2A 3LJ

BIS Software

2000

CITY — IBM SHIFT LEADER — £4750
Our clients, a major financial organisation, requires Shift Leader with a minimum of 3 years IBM 370 experience. The successful applicant who should currently be of Senior Operator status, will possess a thorough understanding of DOS VS POWER and CICs. A 2 shift system is in operation.

HERTS — IBM SENIOR OP — £3800
A minimum of 2 years OS experience is required to join a rapidly expanding commercial installation. The company are seeking applicants capable of progressing to a more senior position within a short period of time whilst offering the opportunity to gain experience on New Range equipment.

SURREY — HONEYWELL OP — £4000
A major manufacturing company requires an operator with 12 months' Honeywell experience (preferably MOD 1) to join a small team. The chosen candidate will primarily be responsible for the running of a mid-range Level 66 machine on a 2-shift system.

CITY — ICL SHIFT LEADER — C4000
4 years operating experience, ideally George II with Macros involvement is a requirement for this leading financial organisation. A 2-shift system is in operation and it is envisaged that the person selected will transfer to New Range 2960 hardware in a supervisory capacity. Benefits include subsidised mortgage and LV'F

UNIVAC OPERATIONS
We currently have a number of vacancies for Senior and Junior Operators in London and the Home Counties. Applicants should possess upwards of 6 months 9000 Series experience, together with a good knowledge of the associated operating systems. Salaries are in the range £3000 £4000

OPERATIONS — VARIOUS

OP SUP	B3700	2 yrs +	MCPV	SURREY	£4500
SEN OP	U9000	12 mths +.	OS	LONDON	£3500
S LDR	IBM 370	3 yrs	DOS VS	SURREY	£4700
OP	IBM 370	12 mths	DOS VS	SURREY	£3700
OP	IBM 370	6mths +	OS VS1	SURREY	£3400
OP	IBM 370	12mths+	OS VS1	HERTS/MX	£3700
O Crl	ICL 1900	8mths+	Man/G2	W LON	£3500
OP SUP	ICL 2903	2 yrs	Exec I	SURREY	£3800
SEN OP/OPS	ICL 1900	12mths	Geo II	W LON/SY	£3500

COMPUTER TWO THOUSAND
01-637 3266
217/218 TOTTENHAM CT. RD. W1P 9AF

DATA NETWORK CONTROLLERS

Infotron Systems is seeking Engineers experienced in teleprocessing networks to assist in major projects which the Company has recently been awarded.

The positions are based in both London and Manchester and will involve some limited shift work on site.

There are prospects of travel both in and outside the UK.

We are seeking Engineers with experience in both communications and computing hardware who have HNC/HNO Electronics.

Training on Infotron products will be given.

Infotron Systems Limited
Systems House, Poundbury Road
Dorchester, Dorset DT1 2PG
Dorchester (0305) 66016

UNIVERSITY OF SALFORD COMPUTING LABORATORY

PROGRAMMER

... the Operating Systems group of the Computing Laboratory to provide support and development for the University's dual prime 300 system and ICL 1904S. Applicants should have experience of mini and/or micro-processor systems and be conversant with FORTRAN and assembly language programming.

Salary £2904-£4180 (under review) USS Superannuation

Further particulars and application forms may be obtained from the Registrar, University of Salford, Salford M5 4WT, to whom completed applications should be returned by 9 December 1977, quoting reference CI/41/CW

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NORTHAMPTONSHIRE COUNTY COUNCIL

Assistant County Treasurer

Computer Services

£7248 to £7779 plus £312 and £208 pay supplements

The post falls vacant due to the impending retirement of the present holder.

The Council operates an ICL 1904S and is currently undertaking an appraisal of its computing requirements post 1980, when the existing machine will be replaced. In addition to extensive computer services for a number of County Council Departments, six out of seven District Councils in Northamptonshire have terminal links to the County's processor.

The person appointed, male or female, will be responsible for all aspects of computing within the Authority and applications are invited from persons of proven managerial ability, preferably gained in a Local Authority environment.

Application forms and further particulars from the Personnel Officer, County Hall, George Row, Northampton. Telephone Northampton 34833 Ext 6237 to be returned by 9th December, 1977.

Northamptonshire
Treasurer's Department

SMALL IS BEAUTIFUL IN STAFFORD

You probably have at least three years experience in a large computer set-up and would appreciate a situation where people matter and with an opportunity for real responsibility and a secure career. We are Jan Shoes Ltd, our ICL System 10 is relatively small, we are the largest national footwear distributor in the U.K. and our business depends upon sophisticated in-stock information for hundreds of independent retailers throughout the country. We need a male or female

ASSISTANT COMPUTER MANAGER

who is capable of growing with the organisation and developing the department to cope with increasing sales volume and stock-turnover.

If you are in your mid-twenties, suitably experienced and can write in Assembler (or will convert) we can offer you excellent career prospects and a higher salary than you are getting now.

Write or phone in the first instance, giving enough details of age, experience and current earnings to make an application [illegible]
5 Lower Temple Street, Birmingham B2 4JD (021-643 0969) who is advising on this appointment. All communications will be held in strict confidence.

MORGAN GUARANTY TRUST COMPANY OF NEW YORK

cherche un

data processing manager

Situation: BRUXELLES — Salaire: 1.000.000 FB

Morgan Guaranty est le cinquième banque commerciale des Etats-Unis. Elle compte 13 succursales à travers le monde dans les principaux centres financiers et des filiales dans 35 autres pays.

Etablie depuis 1919 en Belgique, Morgan Guaranty emploie environ 500 personnes dans ses sièges de Bruxelles et d'Anvers.

La banque entame une importante nouvelle étape en informatique dans laquelle le Data Processing Manager devra jouer un rôle important.

Ses responsabilités comprendront:

■ le commandement d'une équipe d'environ 30 personnes, ■ la direction d'un centre équipé d'un ordinateur IBM 370/145 travaillant 24 heures sur 24, ■ la responsabilité budgétaire du centre, ■ la participation à la planification des nouveaux systèmes et de l'équipement.

L'on attendra de lui:

■ qu'il ait l'expérience d'une installation informatique moyenne ou importante, ■ qu'il soit parfait bilingue anglais/français.

Il pourra s'attendre aux avantages extra-légaux traditionnels ainsi qu'à une aide en matière de déménagement.

Les candidatures seront à adresser à Monsieur J. Bruylant, Morgan Guaranty Trust Company of New York, avenue des Arts 35, B-1040 Bruxelles, Belgique, qui les traitera avec toute discrétion.

CHRISTMAS CHEER

FIVE WEEKS TO GO AND THE WORK IS STILL COMING IN

We have a number of contracts due to start in December requiring the following skills:

IBM COBOL/BAL
IBM ASSEMBLER CICS
IBM PLI
IBM FORTRAN

All other disciplines welcome, i.e.

HONEYWELL, ICL
UNIVAC & PDP

For further information please telephone: **ANN COLLINS**

D.P. SUPPORT SERVICES LIMITED
Kent House, 87 Regent Street, London W.1
Tel. 01-437 2062/3/4

dp

HOLLAND

PL1-CICS Programmers — **£1,200+ per month**

We require an experienced 370 Programmer to work in Holland on development of Teleprocessing and Database applications. Essential requirements are a sound knowledge of PL1 and CICS, and a basic knowledge of 370 Assembler. Experience of total D.B. would be useful although not essential as training will be given. Initial contract periods be 1 year with the possibility of extension.

For further details please contact B. S. Bidston

7 The Courtyard, Denmark Street, Wokingham, Berkshire RG11 2HB. Tel (0734) 791226 Telex 847317

370 Software Support cds

370/138 Operator

Salary £3,200 (Inclusive of Bonus)

We are market leaders in the U.K. cosmetics field manufacturing and selling a wide range of cosmetic and skin care products.

We have recently upgraded our IBM machine to a 370/138. We require an operator (male/female) with at least one year's experience of such a machine who also has knowledge of OS/VSI to join our Information Data Services team operating to a two shift system.

If this position interests you write or telephone:

Mrs Joan Leslie, Personnel Manager, U.K. Group, Max Factor & Co., P.O. Box 3, Francis Avenue, West Howe, Bournemouth BH11 8NZ. Telephone No. (0202) 25541.

MAX FACTOR

Broaden your knowledge, and ours!

We have recently enhanced 64K 1902T, with embryonic communications facility. We are also beginning to dabble with database. Why not come and learn with us? In addition we have an ever-growing range of applications in such fields as Library Book Charging, Ordering and Cataloguing, Income Processing and Land Usage. To complete our team we require two additional staff.—

1. A SYSTEMS ANALYST. £5644-£5947 p.a. with a programming background, and about 18 months' systems experience to formalised standards. The successful applicant will participate in a project team environment, responsible for some of these applications. Ref. No. IC/49/CW.

2. A PROGRAMMING TEAM LEADER. £5194-£5500 p.a., who, using his organisational skills plus his COBOL and PLAN experience, will accept the full programming responsibilities for a group of these applications. Considerable discretion will be given to the successful applicant to carry out these duties. Ref. No. IC/50/CW

The installation is situated near to King's Cross, St. Pancras and Euston main line stations. A 35-hour week is worked with flexitime, and generous holiday allowances. Interest-free loans are available for the purchase of annual season tickets, and a subsidised staff restaurant is provided.

Call Mike Blick (X2251) or Chris Coker (X2049) on 01-278 4444 to hear more about the job

camden

For application form please telephone our 24 hour recruitment answering service 01-637 9969 or send a postcard to the Chief Executive, London Borough of Camden, Town Hall, Euston Road, London NW1 2RU stating post and reference number.

K & S

One of the leading local government installations

SYSTEMS ANALYST	**to £5800**
SENIOR PROGRAMMER	**to £5350**
PROGRAMMER	**to £4500**

Location: Worcester Park, Surrey

We are about to take our next step to keep us in the forefront of local government computing. DL/1 and GIS are on order as is an IBM 370/148 (to replace our existing 370/145)

We are offering an exciting career path for all the positions shown above, as we extend our T.P. network with the introduction of more V.D.Us and mini-computers and as we begin implementation of DL/1 and GIS.

We operate under OS/VS1 and CICS and program in PL/1 and Assembler. Where relevant experience is missing full training will be given

If you can offer us ability and enthusiasm we will give you the chance to prove your worth in a challenging environment.

Telephone Doug Kenward or Ian Forrest now on 01-337 4403 or, if preferred, apply in writing to.

KINGSTON & SUTTON J.C.C., COMPUTER CENTRE
GREEN LANE, WORCESTER PARK, SURREY

WOKING BOROUGH COUNCIL

Computer Operator

£2998-£3480 p.a. (incl.)

We are seeking an experienced Operator to run the Council's ICL 2904 computer with Direct Data entry 60K Store and EOS 60 Communications equipment in use and data processing is also carried out for other Councils. The section works on a 2 shift system – 74 hour fortnight Mon-Fri. Training may be given to suitable applicants.

Please apply to the Personnel Department, Council Offices, Woking, Surrey (Tel Woking 5931, ext 17 or 18) for an application form.

Closing date: 6th December, 1977.

woking BOROUGH COUNCIL

Senior Programmer
Weston-super-Mare

EMI Electronics Ltd. have a vacancy at their Research Laboratory at Weston-super-Mare for a Senior Programmer.

The successful applicant will join a small program development team operating on GEC 900 series and 4080 computers and providing comprehensive computer programs. The job entails data acquisition, processing, analysis, documentation and mathematical support.

Candidates (male or female) should possess at least an HND in Mathematics or Computing and have had two years experience of high level and low level programming in scientific, engineering or process control work.

A competitive salary will be offered and relocation expenses will be paid where appropriate.

Please write or 'phone for an application form to: D. K. Shires, Personnel Officer, EMI Electronics Ltd., Wookey Hole Road, Wells, Somerset, BA5 1AA. Telephone: Wells (0749) 72081.

EMI Electronics Ltd
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EMI

Data Management

Two vacancies have arisen within the Data Management section of our Computer Centre at New Malden.

Job Control Clerk

For this position we require a minimum of one years' experience of Job Control involving DOS/VS POWER/VS and J CL/JECL

Scheduler

This position offers experience of a wide range of application and duties involving the preparation of daily computer schedules, liaison with user departments and provision of advanced schedules. The successful applicant is unlikely to be less than 22 years old and must have had an overall 4/5 years operations experience, particularly on I.B.M. main frame equipment, together with a sound knowledge of DOS/VS and POWER/VS job control languages

The installation comprises an IBM 370/148 supporting teleprocessing, R.J.E. time sharing and batch. The main operating system is DOS/VS – REL 34 with POWER/VS. Also VM/370 is being run during the prime shift.

The positions carry competitive salaries and general conditions of employment are excellent. Additional benefits include canteen meals at token prices, discounts on Company products and Sports & Social Club facilities

Write or telephone Personnel Officer,
Decca Limited, Malden Way, New Malden, Surrey KT3 8HQ.
Telephone 01-942 2488.

DECCA The Queen's Award for Export Achievement to Decca Ltd 1976

An Opportunity in Commercial Administration

We are a major UK copper refinery engaged in extensive international trading commodity market transactions.

We wish to recruit a young executive of about 25 years of age to fill a new position in our commercial department. His/her first task will be to establish computer based systems for financial control and market intelligence and on its completion he/she will be engaged more generally in the work of the commercial department.

Thus the post provides an excellent opportunity to gain experience in a demanding but stimulating environment and the opportunity for extensive career development in the commercial and trading spheres.

The post should appeal to young accountants or system analysts interested in the commercial field who wish to broaden their business experience or to recently qualified graduates in economics or business studies.

Please telephone or write to the Personnel Manager, — Walsall 21292.

IMI Refiners Limited
James Bridge Copper Works
Darlaston Road, Walsall WS2 9SJ.

HUNSBURY COMPUTER SERVICES LIMITED

A computer bureau formed in 1975 from the management services department of the Blackwood Hodge Group of Companies. We already have a number of clients throughout the U.K. and are currently engaged in a sales promotion. We are therefore looking for a

SYSTEMS ANALYST

for the expanding Systems Department. The ideal candidate will have had experience in a commercial environment, using ICL 1900 series, and especially with a knowledge of communications equipment. He/She must be capable of working to agreed completion dates, with a minimal amount of supervision. The projects concerned will cover both the enhancement of existing systems and the development of entirely new ones.

Salary is negotiable according to experience, and the Company operates a first-class pension and life assurance schema. Please write giving full details of career to date to:—

Personnel Manager
HUNSBURY COMPUTER SERVICES LIMITED
Hunsbury Hill Avenue
Northampton NN4 9QT

Urgent Requirements

1. Manager Mini Time sharing, Northants, £5.k+
2. Commercial systems graduate with experience, Ipswich, £5.k+
3. Programmer all levels to £4.5k

ICL, COBOL, IBM, Assembler or PL1 Mini Assembler or Cobol or Fortran.

Ring Brien Richmond 0603-867233 (or leave a message on our Ansafone), or write to join our register, for all computer jobs in East Anglia.

EAST ANGLIAN SYSTEMS LIMITED
P.O. Box 70
Norwich NR1 4EF

WHY COMMUTE?
Country or Seaside

Woking. Programmer - Cobol £4,500 to 5k. Superb working conditions and relocation expenses.

Guildford/Leatherhead: Programmers and Analysts superb promotional prospect + mortgage assistance + subsidised restaurant. £4,000 to £5,500.

Crawley. System Analyst, beautiful surroundings very rural £5,500 to £6,000.

Brighton: Analysts/Programmer Cobol IBM/ICL mortgage assistance considered lovely location £5,000 to £5,500.

Please telephone Weybridge 41321 today.

dp executive (Weybridge)

Datasolve Datasolve

Knight Contracts

Programmers
4 years
experience or more?

We'd like to hear from you for contracts now and in the New Year. Our current requirements include

IBM PROGRAMMERS OR ANALYST/PROGRAMMERS

AMSTERDAM, LUXEMBOURG, FRANCE, LONDON AND MANCHESTER	IBM OS COBOL
LUXEMBOURG	IBM OS FORTRAN
LONDON	IBM OS BAL
TEHERAN	IBM MVS/IMS
BIRMINGHAM	IBM IMS
CROYDON	IBM DOS COBOL

BURROUGHS

BRIGHTON, SUSSEX	COBOL

ANY

KENT	BASIC

To make an appointment or register your availability ring our consultants Richard Kaluzynski or Suzy Gillam on 01-491 4706.

Operators
2½ years
experience or more?

We can offer you contracts that will fulfil experience and lift your earnings. Maybe one of our immediate requirements is the one you are looking for. If not do not worry – we have plenty more on files.

BURROUGHS 1700, 2700 & 3700

ICL GEORGE III

HONEYWELL 20/40 OS 2000

IBM DATA 100

ICL 2903

TERMINAL OPS.

For further details of above or the wide range of contracts still in the pipeline call ... or Jane Asbury now on 01-491 4706

All vacancies are open to both male and female applicants.

01-491 4706 24-hour answer 'phone.
Knight Computer Services Limited, 14 Old Park Lane, London W1Y 1NL

Knight

021-772 8331 Midlands Recruitment
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Knight Computer Services Limited

Staff Services Division of BOC Datasolve Group and a member of Computing Services Association

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Operate For A Company That Cares
And earn C.£4,300 in Croydon

If you have experience on any mainframe hardware and consider yourself a bit above the rest then we would like to meet you. Our client will provide all training necessary to enable you to carry out duties efficiently and to allow you to progress personally.

The company operates large mainframe equipment linked to a network of terminals and the management services function is expanding on a variety of fronts. You will join a team working on a 3 shift system with opportunities for overtime.

If you have the ability to act as Senior Operator, your earnings will be C.£4,300 including shift allowance with a review after six months. Other benefits include free meals with every shift.

There are wide ranging career paths within operations as well as opportunities to develop within other areas of management services. To find out more about this go-ahead installation which encourages personal progression, telephone our CROYDON office or write quoting reference: CW 65-7H.

01-686 9683 (24 HOUR ANSAPHONE) 19 PARK ...

061-236 2418 FAULKNER HOUSE, FAULKNER STREET, MANCHESTER, M1 4YD

COMPUTER AND PROFESSIONAL PERSONNEL CONSULTANTS — **CAPP ASSOCIATES** LONDON AND MANCHESTER — Computing Services Association

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THE HATFIELD POLYTECHNIC
Computer Centre

Systems Programmer

£3990-£4735

Vacancies exist in our systems software team, which is responsible for the enhancement and maintenance of operating systems software on our DEC system-10 and its communications sub-systems. Our current major interest is in the development of front-end processors/network systems using PDP-11's. Experience of assembler level programming on any computer system is essential.

For further information and an application form telephone Gordon Brand, Hatfield 68100, Ext. 407, or write to the Staffing Officer, The Hatfield Polytechnic, P.O. Box 109, Hatfield, Herts AL10 9AB.

Please quote reference 983/C. Closing date 9-12-77.

JCL/OPERATIONS CONTROLLER

in

Salaries and Pensions Department

We are looking for an Operator with a sound knowledge of JCL and some basic Programming experience to work as a member of a two-person team providing an interface between the department and the Computer Centre. This involves preparation of input, liaison with programmers and dealing with queries and ad hoc requests.

Hours are from 8 a.m.-4.15 p.m. with an earlier start twice a month end. In addition to a competitive starting salary and congenial environment we can offer subsidised restaurant facilities and discount on company products.

Please write with brief details of experience and present salary to

The Personnel Officer
Philips Industries
7th Floor
420/430 London Road, Croydon
or telephone 01-689 2166, ext. 463, for an application form

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Excellent Salary + Tax advantages + Car + Bonus + Holidays Concessions

COMPUTER SERVICES MANAGER designate

U.K. and HOLLAND

Our client, part of a large International Travel Organisation, operating worldwide, are setting up a new Computer System in London to mirror image the system being developed in Holland by the parent company.

You will be based in London for approximately 4 months to learn about the company and the new computer to be installed, and your self then spend up to 2 years in Holland working with the systems development group at the parent company. You will return to London with the system and instill it on the new computer.

You will be responsible for setting up a D.P. unit and staffing it. There will be travel between London and other European locations.

You should be between 25-35 years old, and have at least 2-3 years' experience of data processing, good knowledge of COBOL / ASSEMBLER and Communications. You will need initiative, perseverance and the ability to organise and get things done. Mother tongue must be English (some knowledge of German would help).

The company offers a U.K. salary of £6,000-£7,000 plus a special overseas package in Holland. A company car will be provided. A large bonus is paid on implementation of system. Special holiday-travel concessions are also available.

This is an exceptional opportunity. For discussion, please telephone the Senior Consultant quoting Ref. No. CW153.

Insight Marketing & Personnel
Consultants Ltd.
72-75 Marylebone High Street
London W1M 4AJ
Telephone: 01-486 5644

OPPORTUNITIES IN IRELAND

SYSTEMS SUPPORT SPECIALISTS

DUBLIN £6K+

Our client, a major international computer manufacturer, with a large market share, a successful marketing program, and an extensive installation schedule—has immediate need for experienced and talented systems specialists to join their support group based in Dublin.

They require highly motivated and ambitious persons with a strong programmer/analyst background, and sound business/commercial knowledge to work with both pre-sales and post-sales support teams.

If you have experience in the following areas — **WE WANT TO HEAR FROM YOU.**

Small Systems Group
- System Ten, System 3,
- [illegible]
- Interactive applications

Medium Systems Group
- 2903/4, 360/370, Series 1/[illegible] or other medium systems
- Teleprocessing and Data base applications

Opportunities exist for you to work in the project management mode guiding user companies to their end implement new systems, or you can use your "creative ability" in pre-sales mode to assist the sales force to expand the company's business.

The Rewards

A high basic salary, first-class fringe benefits, and a top grade training program will ensure career progression, and that you are one of the highest paid members of the industry relative to your contribution and experience. Ref. CW164.

I.M.P.C. (IRELAND) LIMITED
Insight Marketing & Personnel Consultants
33 Mespil Road, Dublin 4
Telephone 681277
Please telephone Pat Ratter or Pauline Healy

THE LONDON HOSPITAL (WHITECHAPEL)

We might not pay you the most but give us a try: come and join our lively and progressive Computer Department developing and supporting real time services for the London Hospital. Partly funded by the Department of Health and Social Services and partly by Tower Hamlets Health District, this is a unique experiment in computing in a non-commercial environment.

Situated in a new, modern building near the hospital, the computer centre is within easy access of good sports and social facilities, squash and tennis courts, swimming pool and social club, and it is only 30 minutes by Tube to Oxford Circus.

We can offer you variety of work and good prospects for advancement in a continually developing field based on 2 UNIVAC Mainframes, and a communication network of mini-computers and over 70 terminals in wards, laboratories and offices.

Salary for intermediate operator £4133-£5185 p.a. inclusive.

Applicants should have had a minimum of 2 years' experience.

Salary for basic operators £3495-£4133 p.a. inclusive. Some experience as a trainee operator and/or with compatible equipment preferred.

Application forms from
Sue Clark
Personnel Services
The London Hospital (Whitechapel)
London E1 1BB
Tel. D1-247 6454, Ext. 388
Closing date: Tuesday, December 6, 1977.

GIBSON

Computing Services

MINI MICRO COMPUTERS

COMMERCIAL SALES APPOINTMENTS

INCOME RELATED TO TURNOVER

£10,000/£25,000

We have been appointed O.E.M.s for possibly the most commercial manufacturer/supplier of Real-time Mini & Micro computer systems in the U.K.

These appointments are for sales personnel with a proven record of selling experience in some of the following.

Mini Computers
Bureau sales
V.R.C.
Micro Computers
Mainframes
Terminals

Income is on a commission only basis (probably the highest in the industry) full product training will be given by the manufacturer. The company will pay further commission on achievement of target.

It is envisaged that a successful salesmen will be offered a partnership in the company. If you can meet this challenging appointment, write including a career résumé to:

GIBSON COMPUTING SERVICES
10 ADELAIDE ROAD, BRAMHALL, STOCKPORT
TEL: 061-439 3618

Charles Barker Recruitment

Confidential Reply Service

Please send full career details and list separately companies to which we should not forward your reply. Write the reference number on the envelope and post to us at Barker House, Kingsway Tower, Snow Hill, Queensway, Birmingham B4 6HB

Programmer

West Midlands Up to £4,000

Our clients, who provide computer services for a subsidiary group of companies, require a fully-trained programmer for their data processing centre in the West Midlands. Applicants (male or female) should have sufficient experience to be able to work without close supervision. Age is immaterial, but a knowledge of RPG2 and/or assembler is essential. Benefits and conditions are in line with those of large group practice.

As U.K. Distributors for numerous International Manufacturers we now require additional

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experienced in all types of

DATA PRINTERS

to take charge of individual product lines.

We have recently acquired the OEM Agency for HERMES matrix printers and card handling devices and are now looking for experienced Sales Executives to promote these high quality Swiss machines on the U.K. market.

For further details write, ring or call:—

DATAPLUS

Ron Brotherhood — Limited
111 Promenade, Cheltenham
Tel. 0242 30030

G PLAN

c £4,000

PL/1 Programmer

The makers of G-Plan furniture are seeking a programmer with at least 18 months PL/1 experience to join a small team.

The installation is a 370/125 operating under DOS/VS with POWER and we are currently implementing a trial TP Order Entry system under SHADOW/II.

The successful applicant will be expected to show considerable initiative and work with minimum supervision.

Conditions of service are very good and the salary will be around the £4,000 mark. Assistance will be given with relocation expenses where appropriate.

Apply, stating details of experience, to
Company Personnel Manager
E. GOMME LIMITED
P.O. Box 27, High Wycombe, Bucks.

Programming Professionals

New B6700 installation in Hampshire

Computer Operator

International Container Operations

Associated Container Transportation Services is part of a consortium representing five major British shipping companies and provides a wide range of specialist services connected with container shipping throughout the UK and the Continent.

At our Southampton Head Office we currently have a Honeywell 20/60 and a Burroughs 2700 machine and in April next year will be installing a B6700 with an on-line data base communications network.

Due to internal promotion we now require an operator, male or female, with one or two years' experience of Burroughs machines, preferably B6700, to work on a two shift basis: 08.00-16.00 and 15.30-23.30.

Salary will be up to £3484 per annum, depending on experience, plus 12½% shift allowance (range benefits include 45p LV's, four weeks' holiday, contributory pension and personal sickness and accident schemes.

Please write or telephone for an application form to Mrs. J. A. Chandler, Assistant Personnel Officer, ACT Services Limited, Richmond House, Terminus Terrace, Southampton. Telephone Southampton 34433 ext. 3305.

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Associated Container Transportation Services Ltd.

ACCOUNT MANAGER and SENIOR SALES EXECUTIVES £16,000+

A major international company has a requirement for senior sales executives to sell a range of well established and highly respected computing equipment.

Candidates will ideally have experience of both commercial and engineering applications via the sales of either computer hardware or services. They will also be accustomed to dealing with large private and public organisations at the highest possible level.

Total remuneration will be in keeping with these prestigious selling opportunities, bringing on-quota earnings in the range £12K to £16K plus company car.

These appointments are open to both men and women.

Please write to Alan Williams with full details of your career to date.

SMR SALES and MARKETING RECRUITERS LTD.
12, Lambs Conduit Passage,
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Telephone: 01-837 2281
A SALES and MARKETING SERVICES COMPANY

THE SALES BIT

Beware this type of salesman

THE first thing to ask yourself is, why should a successful salesman want to leave his present job to come and work with your company for a similar income package to the one he already has? After all, if he's a winner his present employer will be anxious to keep him.

From the salesmen's point of view, change demands careful consideration of the financial implications of the "commission trough" and also the risk of not really knowing how near to the truth is the rosy picture his prospective employer has painted.

Then there's the people bit. Will he fit into the establishment of another company?

Then, of course, there are "futures" to be considered. Can he be assured that his new employer is still going to be in business this time next year?

There is so much insecurity in the process of changing jobs that a successful salesman needs to have very positive reasons for doing so. Undoubtedly the most common reason why salesmen change their jobs is because their sales manager has suggested that it might be a good idea!

That is one type, but of course many salesmen seek a change of company for completely valid reasons. The most common justifications are ineffective sales and company management, inadequate product portfolio, important marketing strategy, lack of ongoing product development, unsatisfactory rewards, career limitations, and unfortunate personal relationships.

The hallmark of the effective recruiter of salesmen is his ability to quantify the credibility of the apparently justifiable reasons that come from all salesmen seeking to change their jobs, accurately placing them in one of these two categories, and then taking the appropriate constructive action.

To do this efficiently, the interviewer must have significant expertise in sales management and selling rather than simply being a professional interrogator. Otherwise, he will fail to identify the subtleties of candidates' reactions to well considered sales and marketing questions, and be deprived of the benefit of that "gut feeling" of experience which is always more reliable than face-values.

Remember the golden rule, when in doubt, don't.

So you are under pressure from your boss and you are below sales complement.

Don't let yourself or your company be forced into risk situations. Choosing the wrong salesman costs a lot of money. For a bureau, the total cost will be around £12,000 for the salesman (guarantee, car, overheads etc) plus the profit that should have been made on the new business he should have got but didn't, say 20% on £60,000, giving an approximate total cost of £22,000.

For a hardware manufacturer where salesmen are typically paid more and expected to achieve more, the total figure might be around £30,000.

Beware of one particular type of candidate: the one who looks almost too good for the job; the mature experienced salesmen oozing charisma and articulation.

These candidates typically arrive with an immaculate curriculum vitae. They are well presented, with considerable presence, and an impressive knowledge of the computer industry in terms of products and personalities. They are first class communicators with an apparently good track record. They appear to have a complete understanding of your marketplace and products, and they turn the interview into a good sales call with a good opening and a positive "close".

Yet in reality they have achieved little or nothing for past employers and will almost certainly do the same for you. Call them "guarantee loppers", "easy riders" or what you will. They are, in fact, a considerable hazard for senior management who have had insufficient exposure to this type of salesman.

The reason why they survive, and will continue to do so is twofold. Firstly, the computer industry is expanding so fast that it is able to sustain both the incompetent and the inadequate. Secondly, there is no proven interviewing technique for quantifying such old fashioned qualities as industry, integrity, initiative and self-motivation.

Most of the methods for getting over the ability of the individual salesman only come from considerable exposure to the sales and marketing arena. However, one positive clue to a candidate's real capability is the nature of his chosen referees. If they are not direct superiors within his present or previous job, be on your guard. You would be surprised how many failed salesmen quote vicars, Members of Parliament and pearl-divers.

Once you have decided to offer a job to a candidate, be sure to agree pertinent referees and follow them up. If you can take up some additional references of your own, so much the better.

If you must recruit experienced salesman rather than growing your own from the trainee level, then still look on them as trainees, starting at a higher level. Do they look like a good ongoing investment? Do you have the resources to exploit their real potential and cover for their inadequacies? Will they fit into your existing team? If the answer to any of these questions is no, then you shouldn't be offering them a job.

TRADER

Cheshire

COMPUTER OPERATORS

Up to £4,800 p.a. plus 37½% shift allowance

Chester

We are looking for experienced computer operators for our IBM 370/145 Model 3 which runs under OS/VS1 and supports CICS/VS, RTAM, ATMS/STAIRS and TOTAL. We are also running O.O.S. jobs using a O.O.S. Emulator. The T.P. Network has 8 remote users with 30 terminals and there are another 17 terminals within Computing Services.

The computer operates 24 hours per day every day of the year including all weekends and Bank holidays.

The operators work 12 hour alternating shifts with 3 days on and 3 days off.

Application forms are obtainable from Computing Services, County Treasury, Cheshire County Council, County Hall, Chester CH1 1SG. Tel: Chester 602138, Reference CS8/3/MW.

UNIVERSITY OF ABERDEEN COMPUTING CENTRE

PROGRAMMING ADVISER

Invitations are invited for the above post within the mathematical and scientific advising group. Applicants should have a good honours degree in mathematics or a science subject together with appropriate experience of programming in Fortran or another scientific language. A knowledge of statistical methods would be an advantage.

Salary on scale £3333-£5827 p.a. (under review) with appropriate initial placing.

Further particulars from the Secretary, The University, Aberdeen, with whom applications (2 copies) should be lodged by 12th December, 1977. (telephone 0224 40241, extn. Old Aberdeen 5363 for details.)

LONDON BOROUGH OF ENFIELD

A Person to Specialise in Software

£5,494-£6,055

Applications are invited for this post in the Borough Treasurer's Department. The successful applicant will be responsible for advising on and implementing software. In addition to supervising programming standards. The Borough's computer installation currently consists of a 64K ICL 1902T and is developing a terminal system.

An application form is obtainable, upon receipt of foolscap s.a.e., from the Borough Treasurer, P.O. Box 64, Clyde Centre, Silver Street, Enfield, EN1 3XF. Closing date the 2nd December, 1977. Please quote reference ORA/41.

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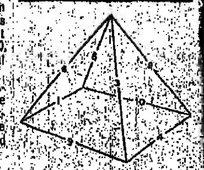
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